The Newspaper of Information Systems Management
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COMPUTERWORLD

Future desktop decisions loom

Intel to drive Pentium boxes under $2,000

By Jaikumar Vijayan

Intel Corp. last week confirmed it will announce another round of dramatic price reductions on its Pentium and 1486 processors next month.

Analysts see the upcoming announcements as part of Intel's continuing strategy to induce the market to accept Pentium as a desktop standard by 1995. For the first time, a 60-MHz Pentium processor will sell for less than a DX4 chip.

Sources briefed by the company said there are actually two announcements slated for the third quarter. They said Intel will lower

Pentium, *page 15*

Chip chop

Pentium prices will drop about 13% in July and an additional 18% to 28% in August

PENTIUM 60	
STARTING PRICE	$675
JULY 1	$587
AUGUST 1	$425
PENTIUM 66	
STARTING PRICE	$750
JULY 1	$650
AUGUST 1	$533

Users unwilling to gamble on first release of Chicago

By William Brandel

Bill Gates and Microsoft Corp. are grossly overestimating the desire of information systems professionals to deploy Chicago at their sites anytime soon, according to recent surveys of IS managers.

Users' attitudes vary from reluctant to incredulous over the highly touted 32-bit version of Windows. Users say they are averse to functioning as extended beta sites for the first release of Chicago once it ships. Rather, they are willing to wait as long as necessary to ensure its stability before they deploy it.

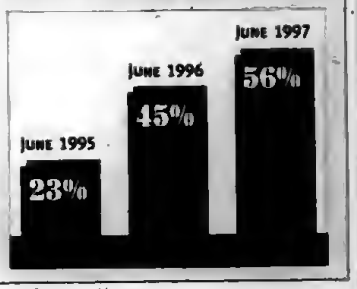
In fact, most plan to hold off deployment for

Chicago, *page 16*

Chicago will be later than users think. For this and other stories on PC Expo, see pages 14, 15 and 16.

Slow boat to Chicago

100 IS MANAGERS WERE ASKED WHAT PERCENTAGE OF THEIR USERS WILL MOVE TO CHICAGO OVER THE NEXT THREE YEARS



Source: Computerworld survey

User complaints eclipse Sun planets

By Jean S. Bozman
MOUNTAIN VIEW, CALIF.

Sun Microsystems, Inc. is pulling the planets out of orbit.

In a move users called long overdue, the $4.3 billion Unix systems and software vendor will close its fiscal year this week with a quiet reorganization that draws several subsidiary business units — or "planets," in Sunspeak — back to home base.

Sun's operating system and software subsidiary, SunSoft, Inc., will thus move closer to providing one-stop shopping for information systems managers, who have complained about having to deal with a confusing array of business units and too many sales forces.

SunSoft President Ed Zander confirmed last week that SunSoft will absorb the business units as of July 1. A formal announcement is slated for later in the month.

"We will be operating with a new organization under the name SunSoft," Zander said. "This will effectively eliminate the SunConnect, SunPro, SunSelect and SunSolutions planets. We're going to operate under one unified sales, service and support organization."

Yet even with the more centralized business model, users said more fine-tuning may still be necessary.

"They're going to have to commit to provide that single point of interface to the users," said Stan Hanks, president of the Sun User Group. "It's a nightmare in licensing. You get to figure out how the whole internal structure of Sun is laced together."

Sun, *page 165*

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Oracle untangles pricing knot

By Kim S. Nash

Under pressure from global sites, Oracle Corp. plans to recalibrate its pricing structure from top to bottom, starting with its Oracle 7 Release 7.1 database, which is slated to ship next month, a company executive confirmed last week.

Specifically, Oracle will ditch a complicated pricing equation that weighs type of CPU, operating system and number of users in favor of a pure per-user license fee model, said Mike Hagan, director of pricing and business practices at Oracle.

▶ Oracle's new pricing schedule is designed to placate companies with multiple locations worldwide, which pay different fees at different sites.

Overall, the new prices (see chart page 165) should "make our lives a lot easier [because] before, pricing was all over the map," said Carl Esposito, president of the New York Oracle Users Group.

"Current pricing is so convoluted that it's about time Oracle fixed it," agreed Bill Shattuck, an analyst at Montgomery Securities in San Francisco.

However, Oracle's new $5,440 entry price for an eight-user database license

Oracle, *page 165*

Vertical industries

IBM services hitting the mark

By Thomas Hoffman

When Southern Pacific Lines decided in 1992 that it would be more cost-effective to outsource its computer operations and applications development, the railroad's selection committee had a tough time deciding among the three outsourcing vendors that bid on the 10-year pact.

Southern Pacific's Thomas Matthews *says industry expertise counts*

The candidates — Electronic Data Systems Corp., Perot Systems Corp. and IBM's Integrated Systems Solutions Corp. — each brought strong technical skills to the table. They pitched comparable pricing, and each offered the $2.9 billion rail giant annual cost savings in the $10 million range.

After a full year of evaluating bids, the San Francisco-based rail company earlier this year tapped ISSC to handle its nationwide information systems operations. The contract is valued at slightly less than $500 million over the next decade.

Why ISSC over the others?

"They weren't learning the business for the first time," said Thomas J. Matthews, Southern Pacific's chief administrative officer. In other words, what really tipped the balance in ISSC's favor was IBM's broad experience in the railroad industry.

ISSC, *page 28*

A PUBLICATION OF IDG

What's Inside

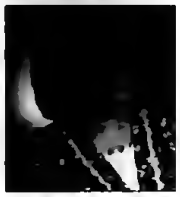
June 27, 1994

IS E-MAIL PRIVATE OR PUBLIC?

SOUND OFF!

COREY L. NELSON

Companies have no right to snoop into my messages, says Corey L. Nelson, an independent software tester. Oh, but they do, says United Parcel Service's Bonnie Brown, because employers own the E-mail network. See In Depth, page 135, for more on this debate.



BONNIE BROWN

NEWS

- **Apple** will provide a sneak preview of its System 7.5 operating system at this week's PC Expo, and users are already making plans to upgrade. *Page 4*
- **Microsoft** launched its **exchange messaging strategy** with an eye to dominating the business applications market with a suite of server products. *Page 4*
- **Security** specialists try to close the security gaps inherent in providing remote access to LANs. *Page 6*
- **Microsoft** is pushing **OLE** as an alternative to its ODBC initiative. *Page 7*
- Twenty years after supermarkets started using **electronic scanners**, pricing accuracy remains a hot issue. *Page 8*
- **Next** previews an advanced operating system and tools to help object-based applications embrace relational data. *Page 10*
- **AT&T** plans a **multimedia-ready** 800 service. *Page 12*
- A Microsoft memo indicates that Windows 3.1 successor **Chicago** may be even later than previously thought. *Page 14*
- Users looking at Microsoft's Windows NT said they don't like what they see in terms of **backup**. *Page 16*
- Tools and utilities to strengthen today's **client/server** installations will take center stage at Database and Client/Server World. *Page 20*

DESKTOP COMPUTING

- **PCMCIA** standards are coming together, and those PC Cards are carving out their niche for the future. *Page 37*

WORKGROUP COMPUTING

- **Sun** says users should turn to multiprocessing workstations for multimedia applications. *Page 73*

ENTERPRISE NETWORKING

- After five years of promises, the **network management** systems that corporate customers use still cannot interact with those used by public data networks. *Page 85*

LARGE SYSTEMS

- **IBM** has created a model that it claims can predict whether client/server projects are likely to succeed or fail. *Page 99*

APPLICATION DEVELOPMENT

- **IBM** turns to multiple language platforms for its **VisualAge** development environment. *Page 113*

MANAGEMENT

- **An aggressive IS policy** coupled with revenue department clout is having dramatic results in Massachusetts, where the state is waging war on delinquent parents. *Page 130*

CAREERS

- Some shops prefer to grow their own client/server programmers, while others prefer a **quick fix**. Buying talent costs. *Page 141*

MARKETPLACE

- Isolated islands of CDPD are available in many areas, but don't expect nationwide service for another two years. *Page 150*

COMMENTARY

- **Charles Babcock** says Sun has to build on, not belittle, the results of the PC revolution. *Page 6*
- **Bill Laberis** says vendors are making the most of health hysteria in the workplace. He also solicits input on U.S. Tech Corps. *Page 32*
- **David Davenport** warns that we've lost touch with people in all our electronic communication. *Page 33*
- **Patricia Seybold** says business objects are the key to interoperability. *Page 33*
- **Jeffrey Henning** says the secret of Microsoft's success is that it led the pack in developing for the Macintosh. *Page 45*

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Executive Briefing

Technology is hot on the retail front. At the corner store, two decades of fat and happy times have come to an end. Consumers are seeking lower prices, and convenience stores are taking a beating from 24-hour supermarkets and shopping clubs. Technology could hold the key to playing catch-up and retaking the neighborhoods. *Page 127*. For the retail industry at large, store aisles and checkout lines have become key battlegrounds. Retailers are investing heavily in technologies to capture more information about customers while making the shopping experience more satisfying. One result is a fundamental shift in the way inventory is maintained and managed. *Page 99*. Meanwhile, the 20th anniversary of the advent of supermarket scanning raises a lingering issue. price inaccuracies. *Page 8*

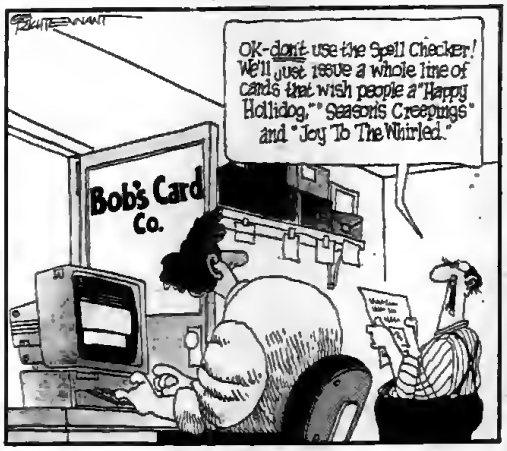
Get ready for a new round of price cuts on Intel's 1486 and Pentium chips. Sources briefed by Intel said two separate announcements are slated for the third quarter: Intel will lower prices by up to 42% on its Pentium processors and by a more modest 11% on its DX4 chip. Elsewhere on the PC front, research shows that Microsoft may have overestimated users' desire to move quickly to Chicago. *Page 1*

Business equipment manufacturer Pitney Bowes may be the exception — a company that succeeded in keeping its technology strategy closely tied to its business strategy. The company is rolling out its information architecture under a four-year plan that is already producing increased customer satisfaction. *Page 24*

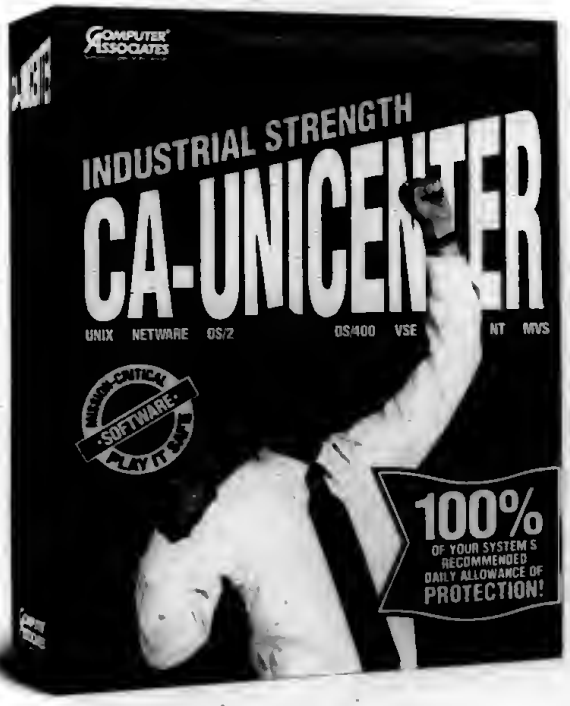
Oracle plans to ditch complicated database pricing that depends on type of CPU, operating system and number of users in favor of a per-user license fee model. The software company reportedly felt pressure from large customer sites to simplify and make pricing more consistent. *Page 1*

The Bank of Boston is in the early stages of a $30 million treasury automation project that includes re-engineering the risk-management systems that govern its foreign exchange trading in Latin America. Industry analysts said risk-management automation is one of the hottest issues in banking these days, as federal and state regulators continue to crack down on risk-sensitive trading activities such as derivatives transactions. *Page 102*

The 5th Wave *by* Rich Tennant



For A Fortified Client/Server Environment, Add This To Your Diet.



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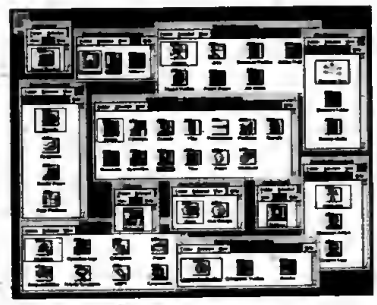

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Client/server strategies

Microsoft pitches server suites

By Lynda Radosevich and Stuart J. Johnston
SEATTLE

Users migrating to client/server platforms will soon have a new concept to deal with — server application suites.

At the introduction of the Exchange messaging platform here last week, Microsoft Corp. officials said the product is one component of a broader suite of Windows NT-based server applications that may be integrated and bundled similar to the way desktop suites are today. In addition to Exchange (see story below), the other server pieces include the Hermes Systems Management Server, SNA Server and the SQL Server database program.

What users want

Users and analysts said the concept could be attractive, provided it means lower costs and better integrated products. A similar look and feel, straightforward administration and management and consistent vendor support were other goals mentioned.

"It's a natural, but no one vendor really had the ability to do the server suite like this before," said Ted Vegvari, a Torrance, Calif.-based independent consultant at a large West Coast financial institution.

Microsoft would not discuss suite pricing, but Vegvari said the vendor would have to give users a 35% to 40% discount on total standalone prices in order to sway them. Pricing for Exchange had not been set, but pricing for an unlimited number of users on an SQL Server is $14,995.

Also, in order to work, "each product would have to prove itself," said J. Chris Bryde, a network communications manager at a multibillion-dollar oil and gas refining company in Wichita, Kan. Otherwise, he added, users may run into the same problems inherent in desktop suites: users paying for something they don't want.

The Microsoft server applications run exclusively on NT Advanced Server, and the forthcoming Exchange and Hermes will run only on Daytona, which is the version of NT and NT Advanced Server due out in September. The single-platform support could be a problem for firms that run file service on Novell, Inc.'s NetWare and server applications on Unix or OS/2, according to Microsoft competitors.

Glenn Bader, a technology analyst at a food delivery conglomerate based in Marshall, Minn., is not one of those users. The company, which includes the Tony's Pizza division service, is moving from NetWare servers to NT Advanced Server and already runs Windows on the desktop. Therefore, running the server applications on NT makes sense, he said.

But, "we're moving to Microsoft on so many things, [buying a server suite] would be a concern. I'm seeing visions of Big Blue," Bader said. In addition to replacing NetWare with NT, the company is rolling out Microsoft Mail to 2,500 users. Adding the other Microsoft server applications could give Microsoft too much control over the company's core business applications, he said.

*Available now on NT Advanced Server 3.1

In fact, that is exactly what Microsoft has in mind. According to a confidential strategy memo written on New Year's Eve by Jim Allchin, vice president of Microsoft's Business Systems division, the plan is to use the Microsoft server applications to lock users into NT.

"These applications form the building blocks for writing LOB [line of business] applications. A file server can be replaced much more easily than a LOB application running in our environment. . . . As with anything, you can charge for value. [Information systems] organizations will pay for that value. After all, they will be depending on these to run their businesses," Allchin said in the memo [CW, March 28].

Starting with Daytona

Integrating the server applications will take some time but will begin with the initial round of server applications written for Daytona, which will start shipping this year, according to Tom Evslin, general manager of server products.

Those applications will share core NT Advanced Server services such as a common performance monitor, similar server management interfaces, common security, and support for TCP/IP, IPX/SPX and other transports.

The next level of integration will likely coincide with Cairo, the object-oriented successor to NT, roughly 12 to 18 months away. With Cairo, Microsoft's goal is to build more of the core, common server application functionality into the operating system, Evslin said.

What and when?

Users attending last week's Microsoft Information Exchange conference said they liked what they saw of the company's forthcoming Exchange messaging server and groupware products. But two questions went unanswered: What will be delivered and when?

Pricing for Exchange also remains somewhat of a question. But Microsoft Chairman Bill Gates indicated it would be priced similarly to today's electronic-mail systems, which run roughly $50 per seat for large companies, including server and client software and gateways.

Exchange is a client/server update to Microsoft Mail that will add groupware features such as shared databases that can be synchronized across multiple Windows NT servers. Exchange has a host of management features and can support roughly 10 times the number of current Mail users.

"They are finally realizing that you can't approach major corporations with just shrink-wrapped applications and just lob it on someone's desk," said Shane Walker, manager of corporate E-mail services at Telecom Australia, which has 37,000 Microsoft Mail users.

A second beta release of Exchange is expected to ship this week to hundreds of customers, with another beta release scheduled for year's end. No commercial release date is available, however.

—Lynda Radosevich and Stuart J. Johnston

Apple offers peek at Mac System 7.5

By Mark Halper

This year's PC Expo will have its share of closed doors, and behind one of them Apple Computer, Inc. will be showing its soon-to-be-released operating system, Macintosh System 7.5.

Apple has in recent months publicly revealed some of System 7.5's features, and it will use the PC event to offer backroom previews of some previously undisclosed features that users said are compelling. According to a confidential System 7.5 product guide obtained by *Computerworld*, they include the following:

- A scriptable finder that lets users write text instructions into system software and thereby automate system and software tasks.
- A doubling of System 7.1's 2G-byte hard disk volume capacity, to 4G bytes.
- Utilities that extend the battery life on Apple's PowerBook line and improve laptop-to-desktop file synchronization.

Multitasking, too

For multitasking fans, the new operating system will include a thread manager that lets developers write an application conforming to multitasking guidelines, an Apple spokeswoman said. System 7.5 will not, however, be a fully threaded operating system that imposes multitasking conformity on all applications, she said.

Combined with previously disclosed features — such as an enriched version of Apple's QuickDraw graphics and printing architecture — users said the features represent a major advance.

System 7.5 has been in beta testing since May. Apple plans a general release in August and is considering issuing public beta releases on CD-ROM early next month, according to users briefed by the company.

The Apple Septet

System 7.5's features include the following:
- Scriptable finder *
- 4G-byte disk volume capacity *
- PowerBook battery life extension *
- Thread manager *
- QuickDraw GX **
- Macintosh PC Exchange for reading Windows files **
- PowerTalk for receiving voice, E-mail and fax messages in one mailbox **
- Built-in TCP/IP support **
- Active "walk through" help guide **
- Bug fixes from 7.1 **

Will be disclosed this week*
Previously disclosed**

"We will want to do some upgrades, whereas we don't always do that for incremental releases," said Tim Yancy, manager of customer service automated systems at Southern California Edison Co. in Rosemead, Calif.

He described the scriptable finder as "a biggie" because "as application developers, we haven't had a very elegant way to tie dissimilar applications together."

Making life easier

Phillip Corchary, network systems analyst at US West Marketing Resource Group, Inc. in Omaha, said QuickDraw GX will ease the chore of driving some of his 2,000-plus Macintoshes to produce yellow pages and printed sales and marketing materials.

"We have a heavily graphical orientation, and making all the pieces interact correctly can be a challenge. This should simplify the task," Corchary said.

Matt Ghourdjian, national director of technology at the Los Angeles-based law firm Howrey & Simon agreed. "Anyone who has seen QuickDraw GX knows it will make a big difference in how you print," he said.

Corchary also noted that the larger disk volume capacities will come as good news to "the more sophisticated users who buy a large disk drive and then discover they can't easily use half of it."

For more PC Expo coverage, see pages 1, 14, 15 and 16.

WHAT'S GOING TO HAPPEN NEXT?

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ORACLE

Sun's divided mind

When you listen to a vintage Scott McNealy monologue, you see a vision of the future for Sun Microsystems, as well as the possible recurrence of problems that have plagued its recent history.

McNealy addressed the attendees of SunWorld '94 in San Francisco on June 14. Sun is still the leader in workstations, but it is a price/performance leader, not the SPECmark leader or qualitative leader. It sells the best workstations at its price points, but that is not the same as selling the best workstations.

In addition, Sun has brought forth the Solaris operating system for both SPARC and Intel hardware. As the largest workstation vendor, Sun is the de facto leader in Unix operating system sales, but the quality issues that apply marginally to Sun hardware came home to roost with the early, rushed-out versions of Solaris.

"I looked out at our engineers one-and-a-half to two years ago and said, 'We can make Intel/Microsoft applications run on SPARC Solaris II, but we can't make Solaris I applications run on Solaris II. What's wrong with that picture?' " McNealy acknowledged to the crowd.

Being a leader in Unix systems doesn't necessarily put Sun at odds with the burgeoning PC revolution.

Charles Babcock

Sun has fixed that problem, but the fact that it needed fixing touches on one of the modern characteristics of Sun. In the person of Scott McNealy, it is derisive toward the older companies it has displaced, such as Digital and IBM. "If you want to see stupid pet tricks, you have to go visit the DEC booth," he said to the laughs of a partisan audience. At the same time, Sun has more in common with Digital and IBM than with Microsoft and Intel, which are fueling the explosion at the base of computing. Sun is envious of the success of these latter two firms, so SunSoft rushed out Solaris for Intel rather than getting it right for its own customers.

Sun has yet to come to grips with the fact that being a leader in Unix systems doesn't necessarily put it at odds with the burgeoning PC revolution that continues apace. This growth is as much an opportunity for Sun as anyone else, but McNealy miscasts it as struggle with Sun for legitimacy and leadership.

"I've actually argued with quite a few senior executives and MIS directors that I could lower my costs at Sun and raise productivity if I could just remove every spreadsheet, every word processor, every presentation graphics package," McNealy said. In other words, end users would be better served by the server end of client/server computing than the PC desktop.

There is something almost Olsenish in McNealy's desire to minimize the PC revolution, which makes his mockery of Digital all the more suspect. Despite its many accomplishments, the modern Sun embraces a kind of schizophrenia that says repeatedly, "The rapidly expanding base of PCs is not important. We just wish we could participate in it more directly." Indeed, this division runs through much of the Unix community.

On other fronts, vintage McNealy is fine wine fermented in oak.

Once desktop users are attached to the Internet, he figures they will want to use PCs that can handle video, audio, ease-of-use artificial intelligence software, etc. "Are you going to stick a Briggs & Stratton [one-cylinder lawn mower] engine in there? No. Why not throw in two or four or even eight microprocessors?" He envisions a multiprocessing, multithreaded SPARC machine, of course.

He sees video-on-demand or the ability to download video information to desktops as the next killer application that will result from such processing power on the Internet. And he sees videoconferencing with playback and store as the successor to the immensely popular E-mail.

Sun is likely to assert its leadership in these areas. At the same time, it should listen more and lecture less to IS and try to augment the end-user gains spawned by the PC revolution.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 375-2737

Firms boost LAN security

Security Dynamics, Cisco team up on authentication

By Stephen P. Klett Jr.

Network administrators are beginning to look for more robust security applications as they struggle to keep pace with exploding LAN and remote-access connectivity needs.

"It used to be that simple password schemes were enough. Now, all of a sudden, networks are wide open and people are screaming. It's a mess," said Matt Jacoby, senior network analyst at Norwest Mortgage in Minneapolis, a Cisco Systems, Inc. site.

Last week, Security Dynamics, Inc. in Cambridge, Mass., and Cisco in San Jose, Calif., announced a partnership designed to provide a more secure method of providing users such as Norwest with access to distributed resources in large internetworks.

Security Dynamics will provide a version of its SecurID Card and Advanced Computing Environment (ACE)/Server security system that is compatible with Cisco routers and communications servers. Well known in the Unix world for protecting individual systems such as VAXs, Security Dynamics is making its first attempt to scale up SecurID to provide enterprisewide authentication.

Observers said partnerships such as this are needed because, unlike in the mainframe world, no single vendor today can meet the security needs of distributed networks on its own.

By focusing on the issue of authentication, analysts and other observers said Security Dynamics and Cisco were providing an important piece of the security puzzle.

The SecurID Card is a credit card-size device that generates and displays a six-number user-access code that changes every minute. Combined with a personal identification number for each user, the system provides a two-factor authentication scheme to ensure that only authorized users can access a protected system.

The passwords are collected by the ACE/Server software located on a Unix-based workstation at a central site. ACE/Server verifies user access — whether through data lines, gateways or remote-access servers — to network resources, establishing a security perimeter around selected network resources.

Enhanced protection needed

Users said most internetworking vendors ship proprietary security applications with their products. But they only provide basic dial-up password protection and encryption and do not account for roaming or mobile users.

"Security is a big problem, and products like SecurID are definitely helpful," said Jon Castle, a message engineer at Commonwealth Edison, a Cisco site in Chicago. However, while Castle said SecurID would make it easier to prevent unauthorized access from remote users, he did not think it would ease the larger problem of administering internal user access to data.

"It's necessary to protect a company from itself, making sure users only have access to data they need access to," Castle said.

ACE/Server for Cisco products will ship in the third quarter starting at $1,950. SecurID Card pricing starts at $34 per card.

PC NetView garners mixed response

By Steve Moore

With the introduction last week of NetView for Windows, IBM closed a low-end gap in its NetView network management product family, which already spanned the OS/2, AIX and mainframe platforms.

"Given that IBM is in the forefront of using PowerPCs to integrate the Unix and Intel/DOS worlds, the effort of porting all this onto a Windows base seems somewhat questionable," said Anura Guruge, an independent analyst in New Ipswich, N.H.

Users expressed divergent opinions about investing in Windows-based network management, however.

"Windows is our companywide standard for our man/machine interface, and if IBM brought out NetView for Windows, I would assume that we would migrate to that almost right away," said Nancy Wong, manager of computer and network operations at Pacific Gas & Electric Co. in San Francisco.

Reaction missed

Yet other users were unconvinced.

"NetView for Windows really wouldn't fit a need for us," said Michael Roy, network manager at Samsonite Corp. in Denver. "Right now we're using 3Com cards at the SNMP level. For the higher-level application interface, we're waiting for the [Desktop Management Task Force] and [Desktop Management Interface] stuff to settle out."

Along with NetView for Windows, which will be available July 29 at $1,895 per client, IBM introduced several other products (see box).

Analysts questioned Windows' attractiveness to third-party application developers, as well as its lack of power relative to OS/2.

"If IBM supports all the same NetView/6000 APIs on this Windows platform, that gives [independent software vendors] and network equipment providers half of what they need to port applications to it," said Dave Passmore, principal consultant at Decisis, Inc. in Herndon, Va. Passmore noted that the other half of the Application Programming Interfaces (APIs) are Unix-specific and must be changed to run on Windows. "It's not a simple port even if the management APIs are the same," he said.

Juggling the pieces

In addition to NetView for Windows, IBM announced the following network management products:

- **LAN Network Manager for AIX:** June 30 for $13,700.
- **NetView Performance Manager 2.2:** June 24. Prices vary with MVS or VM bases and optional Novell, Inc. features.
- **AIX NetView Distribution Manager/6000 2.1:** June 30 for a $900 base charge. Volume-based, per-client charges range from $2.50 to $300.

Microsoft downplays ODBC, pushes OLE

By Melinda-Carol Ballou

Microsoft Corp. is shifting its stance on its Open Database Connectivity (ODBC), potentially undermining a database interoperability standard that is building momentum. Instead Microsoft is pushing developers to focus on supporting Object Linking and Embedding (OLE), third-party sources and company officials said last week.

Microsoft has touted ODBC in the past year or so as the key standard for database interoperability from the desktop. Major independent software vendors and some corporate developers sank significant resources into supporting the standard, which became a checkoff item on the list for tools and applications.

By pushing developers to support OLE instead, analysts said, Microsoft is seeking to maintain its edge over third-party vendors while moving beyond what some analysts see as the limited capabilities of ODBC.

Grace under pressure

Dave Seres, Microsoft's OLE product manager, insisted that "we're not backing away from ODBC. We have 50 ODBC drivers out there." But, he added "we will provide a very graceful way for people to evolve from ODBC to OLE if they choose to do that."

And Microsoft is strongly advising that choice. Its reasons for doing so include what Seres described as OLE's flexibility to support a range of data needs moving into a future that will require access to object-oriented databases. Ultimately, OLE will also offer the ability to distribute objects with OLE 3.0 and Cairo, he said.

Channel change

Industry sources said connectivity between Microsoft's Access Jet Engine database and SQL Server, now handled by ODBC, will ultimately be handled by OLE interfaces called Database Access Objects. Microsoft "will continue to give lip service to ODBC, but their own database engines will be communicating without ODBC," said Rich Finkelstein, president of Chicago consultancy Performance Computing.

Cairo, Microsoft's object-oriented operating system, is expected in 1996. ODBC allows for interoperability among SQL databases but does not support access to object-oriented databases.

To enable developers to preserve investments in ODBC, Microsoft will encapsulate ODBC drivers and plug them into OLE interfaces, Seres said. Because new OLE interfaces are under construction, he declined to give specifics about timing or other details.

Some developers said that while Microsoft's shifts in strategy may make sense in some ways, they also create confusion and make planning difficult.

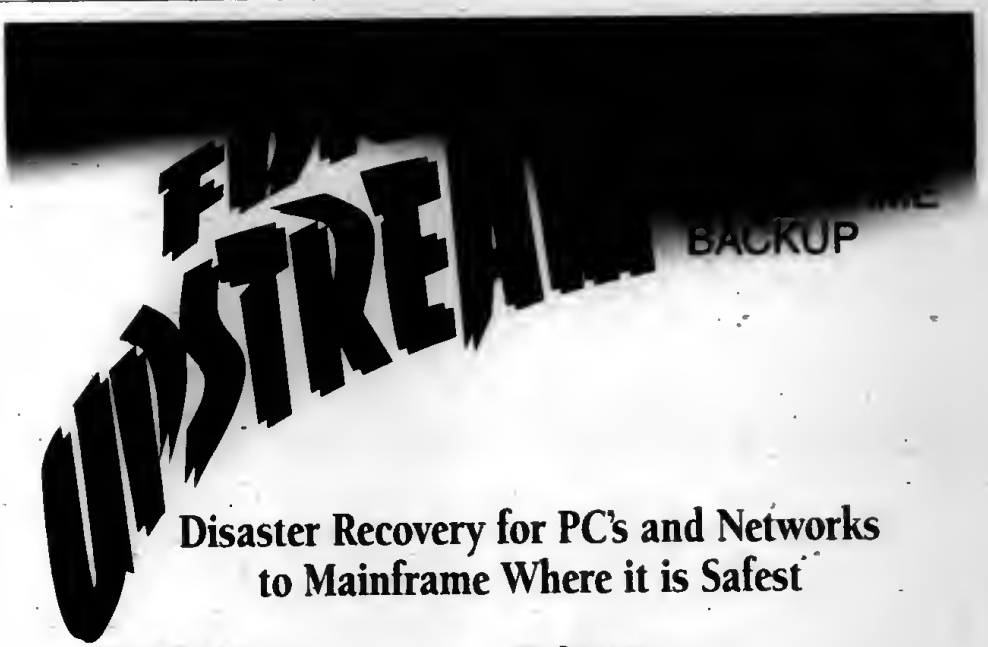
According to Carol Thomson, senior analyst/programmer at Duke University Medical Center in Durham, N.C., using SQL to get to relational database management systems while moving to object-oriented environments is "kind of a force fit," so it makes sense for Microsoft to alter its course.

But other corporate developers who have been using third-party drivers, such as those from Intersolv, Inc. subsidiary Q+E Software, said Microsoft's strategy shift will not cost it much effort because third parties will handle it.

Art Phidd, an assistant vice president at Bankers Trust Co., an investment firm in New York, said his strategy is to implement high-level development and widget sets, allowing the third parties to deal with the low-level grunt work.

But some developers, along with industry analysts, see this as a way for Microsoft to control the market.

"Microsoft wants to stall the market. All those [independent software vendors] put their necks on the line for ODBC as a database strategy, [and] this is hardball," said Judith Hurwitz, president of Hurwitz Consulting, Inc., a consulting firm in Waterlown, Mass.



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News Shorts

Lotus shareholders in a snit

Lotus Development Corp. was slapped with at least one shareholder lawsuit following its stock plummet last week (see story page 30). The plaintiffs contend Lotus deliberately misled investors on April 20 when it forecast its second-quarter earnings in the 42 cent to 50 cent per share range. Last week, Lotus revised those forecasts to 20 cents to 25 cents for the quarter, which ends July 2. Lotus contends it did nothing improper and that the lawsuits are without merit.

Cabletron reports record earnings

Cabletron Systems, Inc. last week reported record earnings for its first quarter, which ended May 31. The Rochester, N.H., company reported a profit of $36.2 million, up from the $26.2 million reported for the same period last year. Net sales for the quarter were up 37% to $180.7 million.

Sequent enters the flow with E-mail

Sequent Computer Systems, Inc. last week launched a program to help users assess their messaging needs and implement the needed infrastructure. Sequent's EnterFlow is geared toward providing Microsoft Corp.'s Microsoft Exchange messaging technology on Sequent hardware.

Novell-ready license manager ships

Saber Software Corp. has begun shipping Version 1.1 of its Saber Enterprise Application Manager (SEAM), a Novell, Inc. NetWare Loadable Module for enterprisewide software license management. SEAM, which can monitor DOS and Windows applications running under Windows, is priced at $695 per server.

AT&T expands Unisource effort

AT&T Corp. confirmed last week that its World Partners alliance with carriers in Japan and Singapore will expand with the addition of Unisource, a consortium owned by the Dutch, Swiss and Swedish telephone authorities. The deal is the latest effort by a U.S.-based carrier to create a seamless international voice and data network with foreign partners. **MCI Communications Corp.** and **Sprint Corp.** have struck similar deals with overseas carriers.

Dual-processor desktops debut

Desktop multiprocessing has taken one step closer to the commercial mainstream with the announcements of dual-processor-based desktop systems by **NEC Technologies, Inc.** and **AST Research, Inc.** The NEC RISCstation 2000, a multiprocessor RISC-based system based on a 64-bit RISC CPU, is expected to sell for $6,000 to $10,000. Meanwhile, AST's new Premmia GX line will feature dual Pentium 90- and 100-MHz processors and 64-bit graphics at a starting price of $4,850.

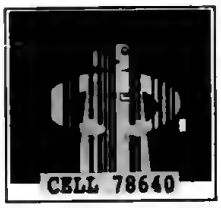
SHORT TAKES **Eastman Kodak Co.** announced that former Apple Computer, Inc. Chief Executive Officer John Sculley will become a part-time marketing adviser, assisting Kodak in building its digital imaging and brand marketing strategies.... Michael Lezenski last week was named chief technology officer at **Bank of Boston**... Optical disc inventor **David Gregg** has sued **Philips Electronics N.V.** and its advertising agency for $20 million, alleging false advertising and misappropriation of his invention.... **Traveling Software, Inc.**, in its first-ever corporate layoff, last week gave pink slips to 10 people from its 130-person work force.... Kenneth N. Pontikes, a pioneer in the computer leasing industry, died last week of colon cancer at the age of 54. Pontikes was chairman and president of **Comdisco, Inc.** in Rosemont, Ill.

Human error trips up laser scanner accuracy

By Mitch Betts

It was 20 years ago yesterday that a clerk at Marsh Supermarket in Troy, Ohio, passed a 10-pack of Wrigley's Juicy Fruit gum over the first laser scanner for bar-coded merchandise.

That inaugural scanner beep signaled the launch of a huge technology success story. Yet while scanners have provided faster checkouts for consumers and detailed sales data for businesses, they have failed to produce the 100% pricing accuracy consumers would like.



Critics argue that consumers are overcharged an estimated $1 billion to $2.5 billion a year because a small but significant portion of merchandise bears a higher price in the scanner's database than on the shelf.

Padding the profits?

A 1992 study by the University of California at Los Angeles (UCLA) found an error rate of 9%, with overcharges outnumbering undercharges 2-to-1.

"Some unscrupulous store managers are padding their profit margins by allowing overcharges to happen," claimed Travis Plunkett, a consumer advocate at the New York Public Interest Research Group in Albany.

Experts said the usual problem is that the shelf label shows an incorrect price, such as a sale price after the sale has ended. In other cases, the scanner's "price lookup" database has not been updated with the latest advertised price changes.

Because states generally require that merchandise be sold for the price marked, several stores have been prosecuted for scanner discrepancies.

Industry executives say the errors are innocent mistakes driven by the fact that stores make thousands of price changes a week. "We emphasize that it's human error at the shelf, and stores need staff training and procedures in place" to ensure price accuracy, said Edie R. Meleski, spokeswoman for the Food Marketing Institute in Washington.

Even the fiercest critics say the scanners themselves are not the culprits. "I blame poor shelf tag management, not the scanners," said Mary Bach, a Murrysville, Pa., consumer advocate known as "the scanner lady" for her persistent complaints about overcharges.

Whereas overcharges are most common on sale items, a follow-up UCLA study found that store managers are quite good at raising prices after a sale ends, said Ronald C. Goodstein, assistant professor of marketing at UCLA.

"I'm not sure if it's intentional, but the stores seem to have better efficiency at marking prices up than they do at marking prices down. Equal care is needed in both directions," he said.

The mismatch between shelf tags and databases has led some stores to experiment with "electronic shelf labels" — digital price displays generated by the same database used by the scanners.

Check your receipts

Pricing errors occur on 2% to 3% of grocery store items and 5% to 15% of merchandise at hardware, convenience and drug stores, estimated Ken Butcher, weights and measures coordinator at the National Institute of Standards and Technology in Gaithersburg, Md. Manual cash registers had error rates of 10% to 15%, he noted.

"The big chain grocers, the first to go to scanning, have gotten their act together. Now the smaller convenience stores are making the same mistakes grocers made in the 1970s," Butcher said. "Having your lowest-paid, least-trained, part-time employee do price changes will lead to a very high error rate."

An industry guidebook recommends hiring a price accuracy coordinator and conducting regular self-audits.

In some ways, the undercharges are just as bad as the overcharges, experts said, because they reduce store profits and cause inaccuracies in the point-of-sale databases used to track specials, profits and market share.

Convenience stores enter the scanner world. See page 127.

Still beeping after all these years

Implementing the first supermarket scanner required a tremendous amount of systems integration, testing and coordination, recalled Clyde Dawson, who at the time was a technology manager at Indianapolis-based Marsh Supermarkets, Inc.

All of the store's products had to have bar-code labels, a new mainframe-to-terminal link had to be tested and a pricing database had to be created from scratch — with each item on its own punched card, Dawson said.

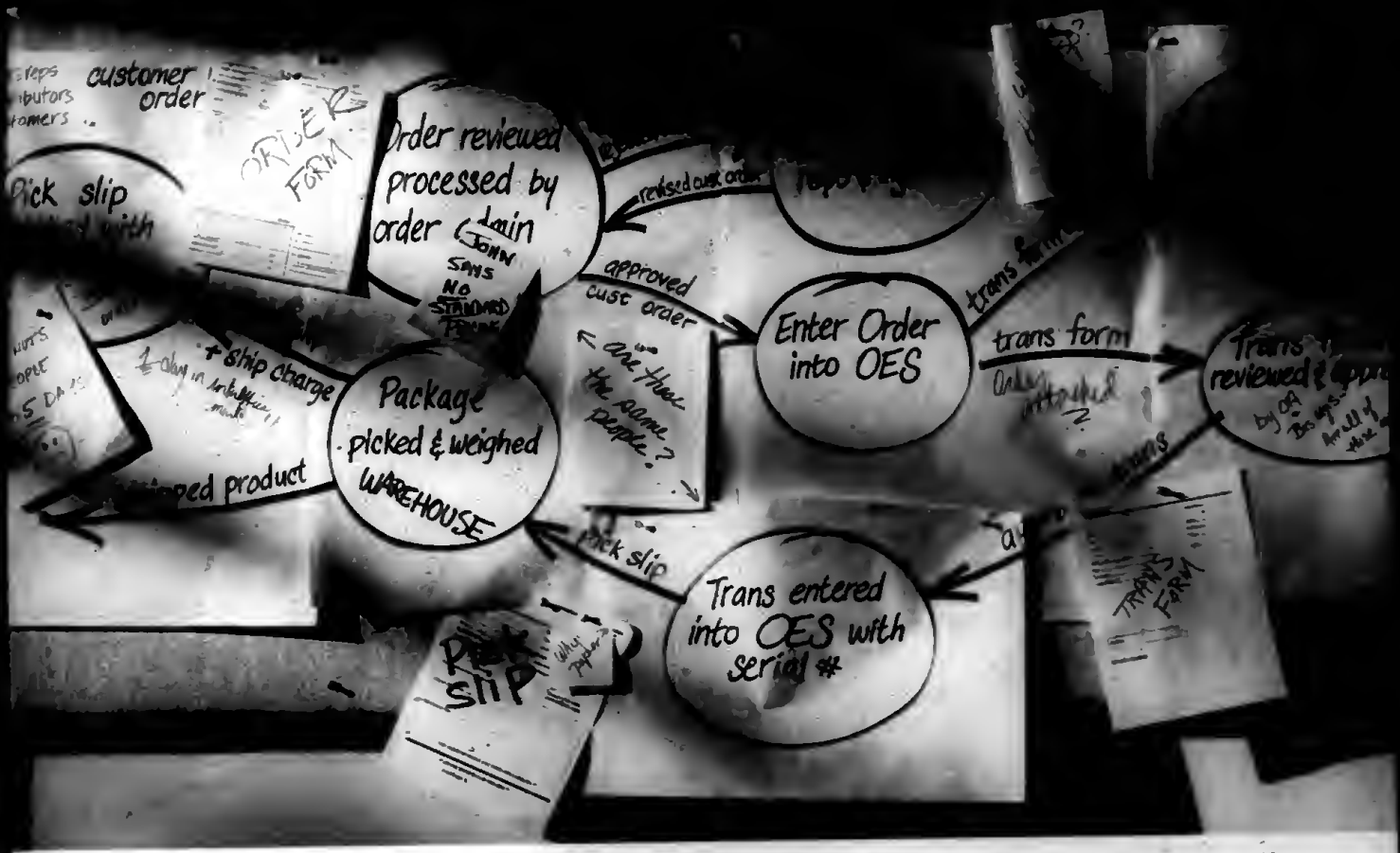
At 8:01 a.m. on June 26, 1974, the system was ready for its first customer. The price of a package of Wrigley's Juicy Fruit gum, clearly marked at 69 cents, showed up on the scanner as 67 cents.

Spectra-Physics' Model A *scanner (left) dwarfs it modern cousin*

"We stopped breathing for a minute," Dawson said. "Then we realized that the [database] was right. We had always sold that product for less than the marked price."

The historic Model A laser scanner from Spectra-Physics Scanning Systems, Inc. in Eugene, Ore., has been added to the collection of the Smithsonian Institution in Washington.

—Mitch Betts



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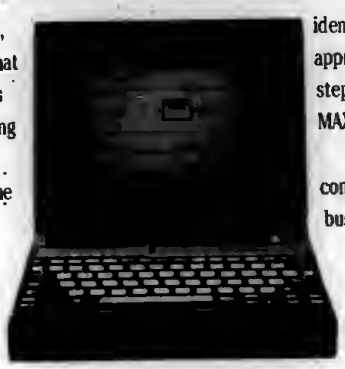

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Next's object future heads for Mecca

By Kim S. Nash
SAN FRANCISCO

Next Computer, Inc. previewed plans for an advanced operating system last week — code-named Mecca — that will be based on the NextStep object-oriented environment. Officials also outlined more immediate product plans for NextStep, including tools to help object applications embrace relational data.

Next Chief Executive Officer Steve Jobs and other executives at the NextExpo conference here were short on details about specific features to be included in Mecca. They did say Mecca will be based on the operating system-independent pieces of NextStep, which Next calls OpenStep and has licensed to Sun Microsystems, Inc.

However, Mecca will also have a new interface and more object development tools, Jobs said. It will not ship until 1996, he added, but applications built with NextStep will be fully binary-compatible with Mecca.

More tangible than Mecca, however, is a major NextStep upgrade due out next summer. In NextStep 4.0, Next rebuilt its electronic-mail system to support multimedia mail. Release 4.0 is expected to be fully compliant with OpenStep and will support platforms based on chips from Intel Corp., Hewlett-Packard Co., Motorola, Inc. and Sun.

Elsewhere, Next formally announced Enterprise Objects Framework (EOF), a tool intended to let users build legacy data, such as that stored in relational databases, into object-oriented development. With EOF, users of NextStep-based object applications would be able to query information in Informix Software, Inc. or Sybase, Inc. databases, for example.

"I can't tell you how important it is to make sure we can get to relational stuff through our object applications," said James Loree, a business and technical analyst at Chrysler Financial Services in Southfield, Mich. The company has been using an object/relational buffer from a third-party provider to connect NextStep applications to Sybase databases.

EOF also contains pieces of Mecca technology, according to Jobs, and is scheduled to ship in October.

Steps defined

NextStep: An object-oriented development environment initially built to run on Next proprietary hardware but now available in various forms on Intel and HP PA-RISC platforms. Sun Solaris and Digital OSF/1 ports are due early next year.
OpenStep: A set of specifications available from the X/Open Co. that define the operating system-independent pieces of NextStep.

Sneak preview

Users can peek at Mecca's new interface by examining the latest release of Nextime, a tool kit for adding multimedia extensions to NextStep applications. Nextime is priced at $99, but user group conference attendees could buy it last week for $20.

Other product plans from the Redwood City, Calif., object technology vendor include NextStep 3.3, a $199 maintenance release to support PC technologies such as 8-bit color and PCMCIA cards. NextStep 3.3 is slated to ship in November.

Digital Equipment Corp. expanded its relationship with Next in a deal that calls for Digital to add OpenStep as a layer atop its OSF/1 operating system.

With the new version of SoftPC, a PC emulation package, Next users can run popular PC software such as WordPerfect Corp.'s word processing application. Improvements include more efficient running of Novell, Inc.'s NetWare and, eventually, support for Microsoft Corp.'s Chicago operating system, Jobs said.

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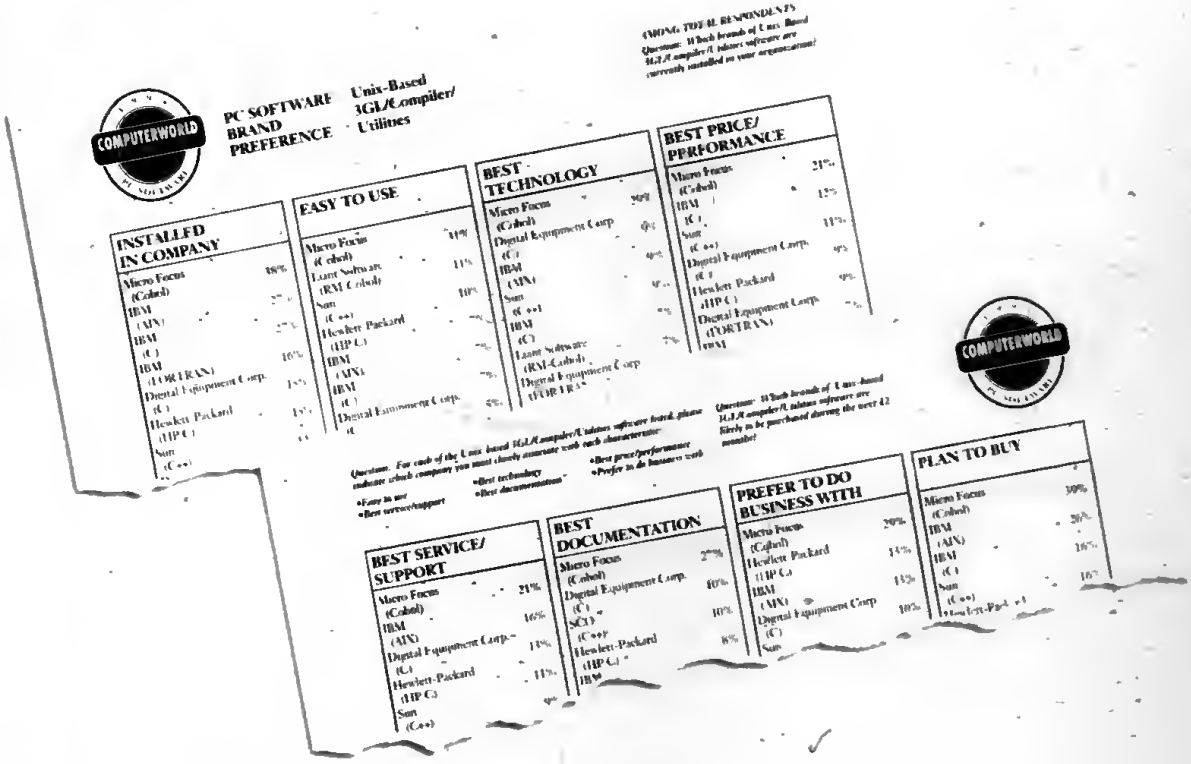

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Race for multimedia crown speeding up

Companies team to get jump on interactive services

By Suruchi Mohan and Jean S. Bozman

AT&T Network Systems and Silicon Graphics, Inc. (SGI) last week launched interactive Digital Solutions (IDS), a joint venture designed to beat other players to multimedia's first base.

No longer the realm of small companies trying to make it big through this technology, interactive multimedia is now where all the big players want to be.

Industry analysts said, as with all nascent technologies, the appearance of giants such as AT&T Corp. in this arena will grow multimedia as it becomes the focus of more attention. The alliance "is a validation that multimedia is not a passing fancy," said Steven Abraham, a partner at Price Waterhouse in Los Angeles.

Joining forces

Industry players certainly agree. Tandem Computers, Inc. in Cupertino, Calif., announced last week that it is joining forces with On-Demand Technologies, Inc. in Austin, Texas, to develop a video server product solution for the interactive multimedia market.

Earlier this month, SGI in Mountain View, Calif., signed a memorandum of understanding with Nippon Telegraph and Telephone Corp., the Japanese telecommunications giant, to build an interactive multimedia service in Japan by 1996.

"This is a second grouping or clustering that has followed a series of announcements a year ago," said Phil Dodds, executive director of the Interactive Multimedia Association in Annapolis, Md. "Organizations are figuring out business plans in multimedia. Multimedia requires skill sets different from what they have, [which is] driving companies together."

Not that companies have never formed partnerships before. Computer industry history is replete with examples of large players trying to bury the hatchet. But they have not often been successful.

"What's different about the recent partnerships is that they are stretching to a different industry — a crossing over to a different species," Dodds said.

Invest now

Despite the activity, it is hard to tell when the multimedia market will take off — companies must jump in so as not to be left behind, Abraham said. "If you want to do anything [other] than play catch-up, you have to invest early," he said.

That is indeed what AT&T and SGI may be doing with the formation of this new company. IDS, which will be based in Mountain View, Calif., will leverage the strengths of both companies to deliver products.

AT&T will provide the sales force to sell the multimedia turnkey systems to large customers — network operators — and service and support for the devices once they have been installed. AT&T will also provide its expertise to integrate the SGI video server with public switched networks.

SGI, for its part, will provide network operators with a high-end media server and software integrated on top of the server, said Jim Barton, president and general manager of IDS.

It will still be some time before the broadband networks these services will require become as ubiquitous as the telephone, however. "Conceptually, what they're doing is terrific, and I applaud them," said S. Ann Earon, president of Telemanagement Resources International, Inc., a management consulting firm in Lake Wylie, S.C. "But call me when it's available."

AT&T plans multimedia-ready 800 service

By Ellis Booker

AT&T Corp. last week announced it will offer a multimedia version of its 800 service next spring — called WorldWorx 800 — that will create toll-free numbers able to transport voice, data and video.

Such a service could provide retailers, their suppliers and eventually the buying public with access to an inventory database featuring images of merchandise. Or it could encourage customers to conduct simultaneous voice and data calls with customer service agents.

A tariff for WorldWorx 800 has yet to submitted by AT&T, although a company spokesman said rates would be consistent and competitive with its existing 800 services.

One of the largest users of 800 services in the nation, 800-Flowers, Inc. in Westbury, N.Y., said it could see many uses for such a service. "We've been throwing around possibilities all day," said Chris McCann, vice president of operations. 800-Flowers currently logs more than 5 million toll-free calls a year with AT&T, which created the toll-free 800 market in 1967.

"Our vendors could show us what the flowers and containers look like before we purchase them," he said. Another use, he said, could be to send instructional video to remote retail outlets.

"This is an incredibly logical progression for 800 service," observed Daniel Briere, president of TeleChoice, Inc., a networking consulting firm in Berona, N.J.

Briere said this and other recent announcements underscore AT&T's faith that the much-maligned Integrated Services Digital Network (ISDN) will be important at the residential level. Two weeks ago, AT&T announced plans for a multipoint videoconferencing system for its WorldWorx network.

The users

But McCann wagered that the user base for this ISDN service will come first from business-to-business links. Next will be home users who may be using ISDN connections to access systems at work, and finally, ordinary folks will have ISDN installed at home.

To make a high-speed connection to WorldWorx 800, a caller will need at least a 56K bit/sec. access line, an ISDN 128K bit/sec. basic rate interface or an ISDN 1.544K bit/sec. primary rate interface line. The firm offering a WorldWorx 800 number will need an ISDN primary rate interface line.

WorldWorx 800 will also be intelligent enough to detect the type of incoming call — voice, low-or high-speed data — and route it accordingly. This means companies will be able to maintain their existing 800 numbers, AT&T said.

IBM's Ramac RAID device challenges Iceberg

By Craig Stedman

NEW YORK

IBM's introduction last week of its Ramac storage subsystems for mainframes gives large systems shops a second fault-tolerant redundant arrays of inexpensive disks (RAID) choice. And some users said Ramac may be easier to implement than Storage Technology Corp.'s first-to-market Iceberg 9200 array.

While Iceberg has added features that could prove beneficial, such as data compression and the ability to write data updates to any available spot on a disk drive, its greater complexity makes it a harder sell than the more conventional IBM products, according to users and analysts.

"For our environment, the fit of the new IBM products looks very good," said Luther Perry, information services director for Santa Cruz County in California. "It looks like we just unplug the old stuff and plug in the new ones, and that's all we have to do."

Easier approach

"IBM's approach certainly looks like less of a big leap," agreed Douglas Underhill, a technical specialist at CSX Technology, Inc., the information systems subsidiary of CSX Corp. in Jacksonville, Fla. However, Underhill added that CSX considers Ramac, Iceberg and EMC Corp.'s Symmetrix arrays to all be viable alternatives for a potential storage upgrade in early 1995.

Iceberg also includes storage management software that gets high marks from early customers, and industry observers noted that it is available now while IBM's arrays will not ship until the fall, as expected [CW, June 6]. But StorageTek needs to convince customers that its technology is workable, analysts said.

"There are still a lot of people sitting on the fence" about Iceberg, said Nick Allen, an analyst at Gartner Group, Inc. in Stamford, Conn. "It is a different beast, and additional time is needed to understand its features." In contrast, implementing IBM's arrays should be "fairly simple," he added.

However, users who already have Iceberg said the extra effort was worth their time. "To understand what is in the box is harder, but that's only because Iceberg is a more comprehensive piece of equipment," said Tom Birk, operations manager at the Environmental Protection Agency's national computer center in Research Triangle Park, N.C., which is running a 200G-byte Iceberg.

Bill Finefield, administrator of the Defense Information Systems Agency's information processing center in Richmond, Va., said the center's migration from StorageTek 3380-class drives to Iceberg has been "very smooth." Iceberg also "gives us a lot more tools to manage and troubleshoot with than traditional" storage devices, he added.

Wayne Pattison, director of data center operations at Kansas City Southern Railway Co. in Kansas City, Mo., agreed that Iceberg appears to have more functionality than Ramac. "IBM's method is more like what we do today, and I'm not so sure that's a good thing," said Pattison, who plans to evaluate both products for a possible upgrade of his IBM 3390 storage in the fall.

Nevertheless, some analysts expect Iceberg sales to be relatively small this year. StorageTek is still predicting about $350 million in Iceberg business this year, but International Data Corp. in Framingham, Mass., lumps it into an "other" category that is estimated at only $150 million total.

Box of RAID

IBM's Ramac RAID devices will be available in volume in October

Data capacity	11.2G to 90.8G bytes
Disk drawers	2 to 16
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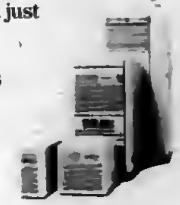

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Further delays expected for Chicago ship

Confidential memo predicts Windows 4.0 may not ship until Q1 1995

By Stuart J. Johnston and Ed Scannell
REDMOND, WASH.

An internal memo posted briefly on CompuServe by a disgruntled employee indicates it is doubtful Microsoft Corp will be able to ship the much-anticipated Chicago operating system by the end of the year.

The memo, written in mid-June by a lead Chicago developer, showed that the original ship date for Chicago was last December. In fact, the memo made it clear that Chicago's ship date has been slipping for quite some time and may well slip another four to five months into early next year.

Separately, the memo detailed Microsoft's failure thus far to make the overdue operating system perform even as well as Windows 3.1 does on older machines. Microsoft officials recently said Chicago was running existing applications about as well as Windows 3.1.

Although company officials still claim Chicago will ship by year's end, many users and analysts now say they do not expect it before March or April 1995 [CW, June 13] because of the lateness of deliveries under the current schedule.

Is it possible?

If Microsoft does get Chicago out by the end of December, it will be a close shave. According to the schedule outlined in the memo, if Microsoft is to ship the product by Nov. 11, it will have only one month between the time the second beta ships and delivery of the Release Candidate for Chicago.

"You can't collapse a planned beta cycle from six months to less than one and expect to ship a product that means anything," said one analyst who received the memo last week. "There is no way they can ship this until late first quarter," he added.

Microsoft officials confirmed the existence of the confidential memo but downplayed any negative interpretation of its contents, including the potential for changes in the interface and its slow performance running 16-bit applications.

"There is some incremental work to be done" on the user interface, said Rich Freedman, a product manager at Microsoft's Personal Operating Systems division. According to the memo, the feature set of the second, and supposedly final, beta will be frozen by mid-July. This was confirmed by Freedman.

Frozen in time

With 20,000 copies of Chicago's first beta release shipping in the next two to three weeks, it may be difficult for users to get comments in before the second beta is frozen, some observers said.

A ways to go

Some corporate users experienced in dealing with beta versions of Microsoft operating systems are already digging in for what they anticipate will be Chicago's arduous creep toward perfection (see story page 1).

For one thing, Microsoft officials last week admitted that the user interface may still change some. Also, the performance achieved running 16-bit Windows programs under Chicago on low-end PCs is still not as good as it is on the current version of Windows.

Performance of 16-bit Windows applications on 4M-byte 386-based PCs is still a problem — 15% slower than under Windows 3.11 — but fixing that before the product ships is still achievable, Freedman said.

"I think the evaluation cycle on this product will be longer than on other products of [Microsoft's] because it represents a pretty extensive change to what they have" in Windows 3.1, said Andy Butler, a staff engineer at the National Association of Broadcasters in Washington. "That is not meant to be a negative comment necessarily, but people have become pretty accustomed to the Windows interface and how it works."

Looking before leaping

Some users said they may wait for several months for the first upgrade of Chicago, or Windows 4.0, before betting their careers on what is virtually a new operating system.

Several beta testers agreed. They said it took a few weeks to get comfortable with the new interface and features such as its "walking" or cascading menu system.

"When I first started using it I didn't like it. But I am getting used to it," said John Burting, manager of software engineering at Rheometrics, Inc. in Piscataway, N.J. "The biggest problem they have is [Chicago's] newness. It just drives differently than Windows 3.1."

Any changes to the user interface will be based on beta test reports and further testing in the company's usability lab. However, beta testers who want to have an impact on the user interface had better respond quickly once they get their copies.

The feature set of the second, and supposedly final, beta will be frozen by mid-July, according to an internal Microsoft memo. Rich Freedman, a product manager at Microsoft's Personal Operating Systems unit, confirmed this time frame.

— Stuart J. Johnston and Ed Scannell

Show spotlights key applications, system software

By Computerworld staff
NEW YORK

Much-anticipated —; and in some cases long-awaited — system and desktop software unveilings will top a long list of products debuting at this week's 13th annual PC Expo here, which is expected to draw some 100,000 PC and information systems managers.

While Microsoft Corp. formally unveils Chicago, or Windows 4.0, (see related stories above and on page 1), IBM will be doing its best to shine the spotlight on its competing operating system, OS/2.

Warp speed

IBM will announce the formal beta program for LAN Server 4.0 and demonstrate the latest beta version of Warp, the code name for a lite version of OS/2 designed to run comfortably within 4M bytes.

LAN Server 4.0, which users can request beginning in mid-July, features a new graphical interface borrowed from IBM's Presentation Manager, as well as a significantly improved installation procedure. The product is expected to largely compete with Novell, Inc.'s NetWare 4.0f.

The essential code base of Warp will serve as the base for all future versions of OS/2 stretching from the desktop to the enterprise, officials will explain at the show this week.

IBM is also expected to show off its recently shipped PC-DOS 6.3 working with a version of the Workplace Shell, a scaled-down version of the graphical interface that sits on top of OS/2 2.1. The DOS version of the Workplace Shell has been delayed until sometime late this year.

Other expected debuts at PC Expo include WordPerfect Corp.'s new suite of desktop applications [CW, June 13] and Borland International, Inc.'s much-demonstrated and much-delayed dBase for Windows [CW, June 20].

PC EXPO

WordPerfect's suite will include two shrink-wrapped versions as well as a CD-ROM-based version. Breaking away from the hundled pricing of existing suites with its CD-ROM-based product, WordPerfect will charge users only for the applications they load. The suite will also include WordPerfect's Perfectfit technology, which will enable users to integrate their existing and shrink-wrapped applications into the suite.

Borland is announcing a new version of dBase for DOS as well as the long-awaited dBase 5.0 for Windows. The new Windows-based version will offer two-way tools, object-oriented dBase extensions and Visual Basic Controls support. SQL drivers will ship separately. The product will be priced at $350 and $199 for an upgrade.

Also on the software front, Lotus Development Corp. is expected to announce and ship Notes VIP, a set of tools for developing graphical front ends to Notes [CW, June 6]. It will ship Notes SQL, a set of Open Database Connectivity (ODBC) drivers that allow users to access Notes data from other ODBC applications.

While Microsoft formally unveils Chicago, IBM will be doing its best to shine the spotlight on its competing operating system, OS/2

More on the way

Roughly 20 third-party vendors are expected to make related Notes announcements.

Other show highlights will include the following:

- An entry-level notebooks from Zenith Data Systems that will introduce the Z-Star EX. Featuring a removable AC adapter that can be exchanged with a battery, removable hard and floppy drives, CPU and display, it will range in price from $1,799 to $3,699. It will weigh 5.7 pounds or less, depending on the screen. Zenith will also announce Z-Player, an external CD-ROM drive that attaches to the notebook via a PCMCIA card, for $499.
- 3M Corp. will release what it bills as the first new advance in the 3½-in. floppy, a version "ruggedized" for mobile computing.
- Software Publishing Corp. will roll out Harvard Graphics 3.0 for Windows. The new product focuses on ease of use, offering new features such as Quick Presentations, Quick Advice, Quick Tips and Design Tips. The product will ship in July and is priced at $395. Competitive upgrades will be available for $99.

Pentium boxes

CONTINUED FROM PAGE 1

prices by up to 38% on its Pentium processors and a more modest 11% on its DX4 chip.

For users, this could mean Pentium-based systems that cost less than $2,000 could become widely available by the third quarter.

Already, Dell Computer Corp. has released a fully configured Pentium-based desktop system that will hit the market with an entry-level price of $1,999. The PCs, which began shipping last week, are based on a 60-MHz Pentium processor and include a 340M-byte hard drive, 8M bytes of memory and a 15-in. monitor.

Other vendors are expected to announce similar reductions following Intel's July announcement, analysts said.

Beefed-up production

Intel has been struggling with a shortfall of Pentium chips but said it is spending about $2 billion to increase capacity. By the end of next year, Intel said it hopes to have four fabrication facilities producing only Pentium processors. In fact, one reason for the DX4 shortfall is that Intel is producing Pentium processors on the same production lines.

In Intel's first announcement, which is scheduled for July 1, it plans to roll back prices on its Pentium P60- and P66-MHz processors by nearly 14%. This announcement is expected to be followed in August by a second even heftier reduction that will drop prices on the two processors by 28% and 18%, respectively.

Prices on Intel's DX4 75- and 100-MHz processors will also drop next month by 9.7% and 11%, respectively.

While next month's announcement is part of a scheduled quarterly price cut from Intel, this is the first time the company plans to announce two separate cuts in the same quarter.

"Pricing for Intel is a way to manage the market. When Intel moves pricing, it's their way of moving the market," said Martin Reynolds, an analyst at Computer Intelligence/InfoCorp in Santa Clara, Calif.

Intel will most likely continue to aggressively drop prices on Pentium processors in an effort to nudge users toward wide acceptance of the chip, Reynolds said. DX2 and DX4 processor prices will also be lowered, although somewhat less aggressively, he added.

Driving this acceptance is a growing home and consumer market that is expected to represent 42% of total demand by late 1995, according to Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass. A number of analysts agreed with Giusto, citing the Pentium's multimedia capabilities.

Crossing over

In line with its effort to nudge Pentium sales forward, Intel now expects the crossover from its 1486 chip to Pentium will be completed by mid-1995. At that point, the chip maker expects Pentium sales will outstrip 1486 sales.

In short, the 486 market may have already peaked, said Thomas Macdonald, marketing director of Intel's microprocessor products group.

"The SX and DX markets are going into a decline mode, and we do see a strong transition to the Pentium," he said.

Analysts said they expect Intel will drop DX prices to current SX levels at some point later this year or early next year and will eliminate SXs altogether.

In the meantime, there are indications that Intel will continue to limit supplies of its popular DX4 75-MHz and 100-MHz chips, which it announced earlier this year, according to some analysts briefed by Intel.

Intel is positioning the DX4, which is not yet in desktop volume, at the notebook segment of the market, while pushing the DX2 as an entry-level desktop processor. According to Macdonald, desktop volume on the DX4 is likely to begin next year.

—Jaikumar Vijayan

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Backup lags behind as NT moves ahead

Dearth of utility options puts some users on edge

By Mary Brandel

■ Companies drawing up their Windows NT plans today will find at least one piece of the infrastructure coming up short — backup.

"People almost uniformly hate their backup for NT," said Adam Lynn, senior LAN engineer at Micro Research Industries in Alexandria, Va.

Microsoft Corp.'s Windows NT operating system does include a basic backup utility, and users can purchase tape backup applications today from Arcada Software, Inc. in Lake Mary, Fla., that are also sold through Conner Peripherals, Inc.

But other LAN backup vendors, including Palindrome Corp. and Cheyenne Software, Inc., last week said their NT wares will not be available until later this year.

That is not soon enough for Chris Radziminski, manager of technical services at Weldwood Ltd. of Canada, a large forest products manufacturer in Vancouver, British Columbia. In the next three months, "I have to come up with two to three proposals to decide where we are with backup and NT," he said.

So far, he said, he is looking toward Arcada and IBM, which has promised NT support in its Adstar Distributed Storage Manager (ADSM) LAN backup system.

"It's going to be slim pickings for NT users until well into the fall," said Gene Nagle, product marketing manager at ADIC, an OEM in Redmond, Wash. "It will be a hit of a problem for the NT user in that he's really not going to have any choice."

Time's a-wasting

Even if users don't need backup right this minute, the lack of even first-release applications has some wondering how long it will take to build a solid backup system. "NT is a moving target," said Ed Hiller, a data processing supervisor at Little Rock Wastewater Utility in Little Rock, Ark.

Hiller said he already went through a "nine-month battle" stabilizing a backup application on Novell, Inc.'s NetWare 4.0, which also came on the market with no workable backup. He said he fears the same experience with NT.

Some throw the backup ball in the operating system vendors' court. "It seems natural to me that Novell and Microsoft — knowing the most about their products — should be able to write the best utilities," Lynn said.

But NT's backup utility, written by Arcada, "is not geared toward lots of servers or consolidating backup," said Tom Bernhardt, a technology analyst at Star Enterprise in Houston. Bernhardt said he plans to standardize on Legent Corp.'s Enterprise Storage Manager (ESM), for which Legent has promised native NT support. ESM is a mainframe-based system that costs $25,000 for the mainframe portion and up to $6,000 for the server.

Starting this week, users can back up NT clients through a NetWare server with a new release of Cheyenne's Arcserv. "I'd prefer not to do that," Hiller said. "If I'm going to change operating systems, I would like to go clean." Palindrome said it will have a similar capability in September.

Some users said they see promise in the current solution set.

"Arcada has the resources to build a quality product, and they'll have competitors at some point," said David Greenberg, director of new systems development at Orlando Health Care in Orlando, Florida.

Others said there is plenty of time for solutions to emerge. "All of the major backup players and the enterprise backup vendors know they'll support NT someday," said Michael Peterson, an analyst at Peripheral Strategies, Inc. in Santa Barbara, Calif. "But it's not a top priority" because NT has not demonstrated stability, he said.

Just the same, users are getting antsy.

"Right now, it doesn't affect us that much," said a senior communications analyst at a large food manufacturer in Minneapolis. "But once we've got superservers in place and a multiprocessor box... we'll scramble to do something."

Backup boom

Demand for all types of backup tape libraries is forecast to grow from 3,603 units in 1993 to more than 96,290 units in 1999, a growth rate of 73%, according to Freeman Associates in Santa Barbara, Calif.

Users unwilling

CONTINUED FROM PAGE 1

at least six to 12 months to thoroughly evaluate the operating system.

This thinking flies smack in the face of Microsoft's marketing message that users will snatch up Chicago as fast as Microsoft can make it. Instead, users said they are holding Chicago at arm's length for the following reasons:

- Only 41% have even migrated to Windows from DOS.
- They have not yet gained returns on their Windows investments.
- They see no need to upgrade Windows applications.
- They are reluctant to upgrade hardware to run the new operating system.
- They are still figuring out how to get the existing technology to work.
- Based on past experiences with Windows and Windows NT, they do not believe Microsoft will deliver a stable version of the operating system its first time out.

"We'll wait even longer than usual for this one," said Dwayne Sawyer, a scientific systems analyst at Eli Lilly & Co. in Indianapolis. "I don't see any direct advantages from moving to it."

Chicago, or Windows 4.0, moved into full beta testing last week (see related story page 14). It represents Microsoft's second attempt to provide a 32-bit upgrade to the DOS and Windows operating environments. Microsoft's first attempt was Windows NT. The NT upgrade, Daytona, is expected to ship before the end of the summer (see related story page 4).

Long haul

Some users said it would take them at least a year to make sure Chicago runs with their existing applications and then another two to three years to fully deploy it.

"These things take time," said Rick Pultorak, a LAN administrator at MBNA America in Newark, Del. "It took us three years just to get everybody on the same version of DOS."

Users also appear less willing to fork over the money for 32-bit applications that will take advantage of Chicago. A survey conducted by International Data Corp. (IDC) in Framingham, Mass., found that 65% of users do not consider it necessary to upgrade their current Windows-based applications.

While some users expressed enthusiasm over the perceived speed improvements that could be gained by moving to a 32-bit operating system, most of those interviewed said they do not see this as reason enough to upgrade. According to a survey conducted by First Market Research in Austin, Texas, 27% of users saw speed improvements as the main reason to move up to Chicago. But 30% said there was no advantage in moving to Chicago.

"The real value of moving over is not apparent. We'll have to run it through our evaluations. Maybe then the advantages will become clearer to us," said Phil Hulet, a software engineering specialist at 3M Co. in Murray, Utah.

"We are anticipating a product like this having some fairly significant bugs so we are laying low. We don't see a lot of [our users] being tickled about it so far," said one PC LAN manager who works at a large Midwestern pharmaceuticals company and who requested anonymity.

While Microsoft has promised a raft of 32-bit applications that take full advantage of Chicago 60 to 90 days after the operating system ships, users are not anticipating such arrivals. Even if many of those applications do arrive, the additional productivity advantage is not clear to many. Most users do not expect applications to be stable enough to run on Chicago for at least 18 months after it ships, according to Mary Conti-Loffredo, an analyst at IDC.

"I am not sure when the 32-bit applications are coming, and I am not sure what the advantages are to upgrading all our 16-bit [applications] except for things like memory management," Hulet said.

An easier beta

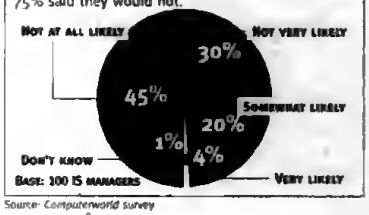
Microsoft officials, however, contradicted users by saying they expect Chicago's beta journey will be significantly easier than those of previous operating systems because of the aggressive beta program the company has in place.

"With up to 50,000 beta users, it is the perfect opportunity to put the prerelease product through its compatibility paces. Microsoft feels a special responsibility to provide great compatibility with the thousands of applications, modem, network cards out there," a spokeswoman said.

Senior editor Ed Scannell contributed to this story.

Hold the phone

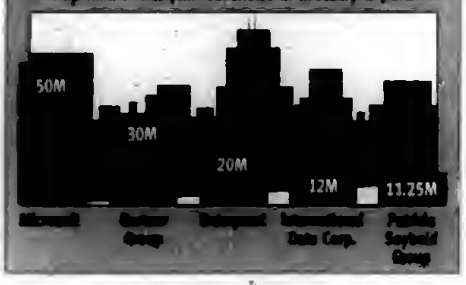
94% of 100 IS managers surveyed said they are not currently developing applications for Chicago. When asked if they would deploy Chicago before commercial applications become widely available, 75% said they would not.



Source: Computerworld survey

Best guess

Microsoft projections of how many units of Chicago will ship in the first year vs. those of industry experts



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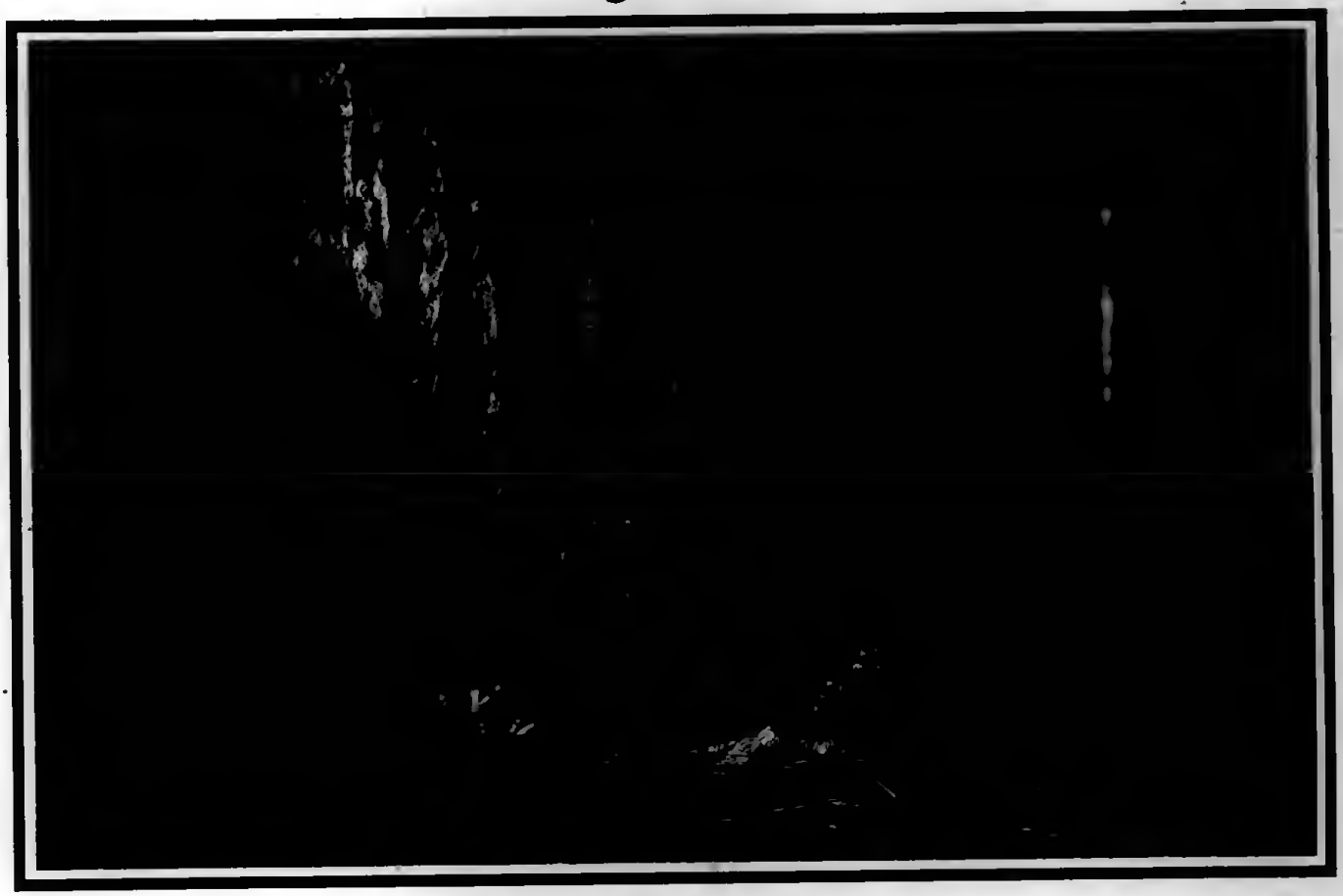

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Client/server tools take next step

By Rosemary Cafasso

Dozens of small software vendors and a handful of bigger industry players will launch new tools at Database & Client/Server World this week in Boston. Their wares will be aimed at the increasingly sophisticated user of client/server technologies.

"The easy client/server is done," said John Mann, an analyst at The Yankee Group in Boston. He noted that many of the scheduled rollouts will include packages to improve database, system and development tool set performance.

"You no longer have just a simple client/server application," Mann said. "It's going to get very complicated."

Topping the list of product rollouts will be Information Builders, Inc.'s Release 3 of Enterprise Data Access/SQL (EDA/SQL). Company officials said they plan to ship Release 3 functions in phases throughout this year.

These functions include facilities to manage heterogeneous distributed databases, improve access to IBM transaction processing systems and assist users in building so-called warehouses, or end-user databases.

For example, the upcoming release will support Call Level Interfaces as defined by the SQL Access Group and X/Open Co. as the application programming interface for SQL access.

In addition, Information Builders will restructure its EDA packaging by offering back-end functions such as stored procedure services in individual components. Currently, users must license an entire EDA/SQL package, which ranges in price from $8,000 to $118,000.

Jan Hopson, a project leader for client/server database services at Caterpillar, Inc. in Peoria, Ill., tested some components of Information Builders' EDA/SQL Release 3 and said the warehouse functions could come in handy. Information Builders plans to provide data staging, directory creation and some data replication functions in Release 3.

"We are in the throes of building a warehouse, and this would make it more feasible," she said. "I know we will have more than one warehouse, so we have to keep that managed."

Increasing importance

Wayne Eckerson, a senior consultant at Patricia Seybold Group in Boston, said he expects data management and replication functions to become increasingly significant for users setting up warehouses on client/server platforms.

Other software rollouts expected at the conference include Legent Corp.'s plan to extend its Legacy Data Mover software, which currently supports IBM's DB2 and Oracle Corp.'s database management systems, to Sybase, Inc.'s platform. Legacy Data Mover extracts data from a host database and stages it on client/server platforms.

Legent will also roll out additional testing tools for the Oracle database environment, including a scheduler for the Ace Tester line.

PeopleSoft, Inc. will demonstrate its HRMS Release 4, which it announced in April and has scheduled for shipment next month. The upgraded client/server human resources software is expected to include new modules such as human resources operations and international assignments.

Several add-ons or enhancements to development platforms will also be showcased, including tools for Lotus Development Corp.'s Notes workgroup software. Brainstorm Technologies, for example, will demonstrate its VB/Link for Notes, a link between Lotus' software and Microsoft Corp.'s Visual Basic.

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Pitney ties technology to customer service goals

By Elisabeth Horwitt

Well into the rollout phase of a four-year systems architecture design effort, Pitney Bowes, Inc. stands out as one of the few corporations that has managed to keep technology decisions tightly coupled with its business goals.

In doing so, the Stamford, Conn., business equipment manufacturer has combined several unusual approaches.

First, it took a technological stand by refusing to build its future around untried technologies, no matter how leading-edge. Second, it resisted the temptation to blindly follow the corporate crowd down the rightsizing road. And third, it picked the applications first and then designed the framework to support them.

CIO Dennis Jones: *Pitney seeks customer service advantage*

With the first step — the network transport phase of the architecture — in place and the second workstation phase scheduled for completion by year's end, the strategy is already beginning to pay off where it counts: in increased customer satisfaction.

The main thrusts behind Pitney's architecture are "to protect our investment in legacy systems while at the same time providing [users] with the data they need to position us ahead of the competition in servicing customers," Dennis Jones, Pitney's chief information officer, said in a recent interview.

First-call service

The first fruit of the company's effort is CallCenter 2000, a customer service system "that empowers the folks in the field [not only to] talk to customers but also to fix a billing problem, adjust an invoice, set up a service call," said Jerry Terrell, director of field administration at Pitney. With the new system, service representatives respond to a full range of customer needs on the first call 92% of the time, he said.

In contrast, Pitney's former setup bounced the customer from person to person and department to department, depending on the query; service reps often took five to six weeks to resolve a problem, Terrell said.

As a result of the accelerated response time, by the end of last year, 47% of customers surveyed said they were "very satisfied" with service, compared with percentages that were in the mid-30s before the service rolled out. The goal is to have 100% satisfaction.

Once completely implemented, the architecture is expected to serve Pitney's hardware and communications needs for at least eight to 10 years, Jones said. In addition to supporting customer service applications, it will serve as a vehicle for key business applications now in the planning stage, such as links between sales and marketing and manufacturing to support just-in-time inventory and more agile product turnaround.

Data from the desktop

The workstation phase of the architecture rollout, slated for completion late this year, focuses on facilitating user data access at the workstation level. One component now in place is a set of event-driven scripts generated by a telemarketing package from Early, Cloud Co. that guides operators through responses to specific types of customer queries.

"This gives people knowledge [on how to cope with a full range of calls] without investing in thousands of hours of training," Terrell said.

Another component, also expected to roll out by the end of the year, is an X Window System-based host interface that will enable users to set up host sessions in four different windows rather than log off and on each time they need data from a different system, said Tom Lasric, director of customer systems.

Eventually, the company will migrate to a PC with a graphical user interface so that users can call up a host application just by hitting an icon. Pitney is now choosing the components for this architecture.

Wrap around the legacy

The keystone of Pitney's architecture is a common transport platform that can "wrap around" legacy applications, providing users with easy access to the data they need across a range of hosts, according to CIO Dennis Jones.

CallCenter users initially query an IBM AS/400, which contains a subset of IBM mainframe data that supports the majority of queries relating to Pitney's mailing system business. However, calls may require a second query to the IBM mainframe or to a mix of computers from Tandem Computers, Inc., Unisys Corp. and Digital Equipment Corp., which handle other Pitney businesses.

Pitney's current transport architecture is based on IBM's Multiprotocol Transport Network, software that allows applications written to IBM's Advanced Program-to-Program Communications (APPC) and 3270 SNA protocols to communicate over a TCP/IP network.

> The common transport platform gives users easy access to data across a range of hosts

APPC provides a common interface to applications on any of Pitney's hosts. The TCP/IP-based transport allows the company's Wellfleet Communications, Inc. routers to perform functions such as traffic load balancing and dynamic rerouting, which are impossible with SNA, said Tom Mayhew, Pitney's director of technical services.

The still-tentative next phase of the transport architecture will combine TCP/IP with IBM's Advanced Peer-to-Peer Network Plus (APPN+), an as-yet-unshipped IBM protocol touted to match TCP/IP in throughput and dynamic rerouting capabilities.

However, Pitney officials said they will not make a final decision on APPN+ until the product is commercially released and fully tested. Nor has the company shut itself off from the possibility of implementing other promising technologies, such as the Open Software Foundation's Distributed Computing Environment, once they have matured, Jones said.

—Elisabeth Horwitt

Health care

IS faces challenge in insurers' HMO effort

By Julia King

Metropolitan Life Insurance Co. and Travelers Insurance Co.'s recent decision to join forces in health care will create a formidable challenge for both firms' information systems groups.

According to analysts, the two are clearly taking aim at the thriving health maintenance organization (HMO) market, betting that their combined size will help them corner a significant share. Yet one of the biggest hurdles they face is the fact that neither IS group has extensive experience with HMOs, one of the cornerstones of managed health care.

HMO plans and the systems necessary to administer them are more complicated than what the two insurers have traditionally concentrated on — so-called indemnity health insurance plans, under which the companies pay a percentage of subscribers' medical bills.

A small fish . . .

The merger of Met Life and Travelers will yield a combined HMO subscriber base of less than 400,000, making the new company a small player in a crowded market

Kaiser Permanente Health Plan, Inc.	5.8M
Prudential Insurance Co.	3.3M
Cigna Insurance	2.7M
United Healthcare Corp.	1.9M
US HealthCare, Inc.	1.3M

Source: Charles J. Singer & Co., Wakefield, Mass.

That difference could translate into an uphill struggle for the new company's IS organization, analysts noted.

"HMOs are a totally different scene from the indemnity world," said Micheal Fisher, an analyst at Technology Management, Inc., an Indianapolis-based information technology consultancy specializing in the managed health care business. "There's a need for totally different systems and applications for managing things like specialized contracts with providers and utilization reviews."

Harmony a longer-term prospect

Meanwhile, the inevitable systems and cultural integration issues that accompany any merger mean that "from an IS perspective, getting these two strangers to sing from the same hymnbook is not going to be trivial. It's going to take some time," said Joe Miller, a principal at Charles J. Singer & Co., a Wakefield, Mass., consultancy specializing in managed health care companies' use of information technology.

Bruce Goodman, who left the chief information officer post at Met Life last November to become CIO at Prudential Insurance Co., zeroed in on cultural differences as well.

"At first blush the two seem pretty similar, but Travelers is a stock company, and Metropolitan is a mutual company owned by its policyholders," Goodman noted. As such, Metropolitan has not been subjected to the same kinds of performance pressures that Travelers has, he said.

Met Life and Travelers executives, meanwhile, said IS plans for what will become the nation's largest health care company are still in the making. An IS chief has yet to be appointed for the new joint venture.

A Met Life spokesman said it is unknown how the merger would affect the 2,600-person IS staff and $340 million IS budget. Travelers, which merged with Primerica Corp. less than six months ago, was even more tight-lipped. A spokesman declined to specify even the size of the current IS organization. In 1993, prior to the Primerica merger, Travelers' overall IS spending was pegged at $387 million.

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World Cup soccer boots up systems

By Jean S. Bozman
STANFORD, CALIF

The U.S. soccer team wasn't the only American powerhouse at the World Cup '94 tournament last week. Powered by open systems, relational databases and high-speed networks, the games' information systems withstood the first week's onslaught of access by thousands of journalists nationwide.

World Cup's systems — pieced together by sponsors Electronic Data Systems Corp., Sun Microsystems, Inc. and long-distance carrier Sprint Corp. — are equivalent in size and functionality to those used by a Fortune 200 corporation, said Bill Alaoglu, assistant vice president of technology at World Cup USA 1994, Inc.

The open systems allow for a flexible IS architecture, according to Alaoglu. The two Sun SPARCcenter 2000 servers and nearly 1,200 workstation clients will be reconfigured on the fly as soccer matches end in some cities and playoff games are held elsewhere [CW, Jan. 24]. Sprint will adjust the scope of World Cup's wide-area network from Sprint's Kansas City, Mo., control center.

WorldCup USA94

Gathering statistics

The client/server applications built on those core systems tally game results, store player biographies and provide information on team practice schedules for journalists covering the games in nine U.S. cities. An Internet World Wide Web server that posts all game results — a last-minute addition — was being accessed 150,000 times daily at the Sun site last week.

More than 100 EDS personnel staffers were working for the events last week; 50 engineers wrote the World Cup applications.

"We've been able to provide global, real-time access," said Alaoglu, who is based in Los Angeles.

A client/server design allowed secured data in a central Sybase, Inc. relational database located in an EDS data center in Plano, Texas, to be displayed in many desktop applications.

Journalists said they used World Cup's on-line statistics system as a facts library before filing their news stories. Sybase's GainMomentum icon-based graphical user interface, installed on the Sun workstations, allowed users to call up data on players and team standings by clicking on different brightly colored squares.

Most users said they did not need any training for the on-line system, as Alaoglu said system designers had intended.

For example, Geoffroy Garetier, a writer for *Le Journal de Dimanche* in Paris, said he learned how to extract data from the Sun system in just a few minutes.

Taiwan's PC grip wavers

Firms alter plans in effort to stay on top

By Michael Fitzgerald
TAIPEI, TAIWAN

Guang Hua Shang Chang, a sort of computer industry flea market mixed in with antique stores, jade shops and the like, is crammed under a highway near downtown Taipei. The computer stores in it are filled with every conceivable part needed to build PCs. The entrepreneurs who run the stores are renowned for their ability to get components when even the biggest Taiwanese vendors cannot.

"Those guys are amazing — there will be times when we can't get certain components, and you go down to Guang Hua and they somehow have managed to find it," said an official at one Taiwanese PC maker.

Guang Hua Shang Chang — "shopping center" in Chinese — represents a microcosm of Taiwan's booming PC industry: a crowded environment filled with businesses that adapt to market changes at astonishing speeds.

Cost-driven

The competition has helped push Taiwan to be one of the lowest-cost hardware providers in the world. This, in part, drove Compaq Computer Corp., IBM PC Co. and other U.S. manufacturers to cut their PC prices in 1992. The end result has been lower prices for the PC market. The flexibility of the Taiwanese PC industry helps explain how it not only survived 1992's price cutting but in fact has grown larger since then.

In 1992 Taiwan shifted focus from desktop systems to building notebooks and manufacturing components. Although PC desktop volumes fell 6% in 1992-93, notebook volumes were up 76%. Graphics card shipments rose by 21%, and LAN card shipments increased by 13%, according to Taiwan's Institute for Information Industry.

"When Compaq lowered prices, it did not squeeze Taiwanese manufacturers. It squeezed American resellers," said Ming Chien, chairman of First International Computer, Inc., a subsidiary of the Taiwanese company that owns Fremont, Calif.-based Everex Systems, Inc. Moreover, Chien claimed, Compaq's price cuts pushed some U.S. manufacturers into using Taiwanese parts.

But 1992 did have an impact on the Taiwanese. Production value growth was up only 14.8%, compared with a seven-year average of 24.65%.

Still, Taiwan today produces 83% of the open market's motherboards, 80% of the mice, 51% of the monitors and 49% of the keyboards. These figures do not reflect worldwide market share because companies such as Apple Computer, Inc., Compaq and IBM produce many of their own components.

Strategy falters

Despite its success and resilience, Taiwan's $10 billion PC business faces major challenges. For one thing, its traditional selling point is slipping.

Twinhead's Ing-Jen Lee *says ODM looks promising*

Taiwan has based its success on being "the ultimate low-end manufacturers," said Leslie Fiering, an analyst at Gartner Group, Inc. in Santa Clara, Calif. But now, "Taiwan is losing its [cost] edge. They're on the wane, and Malaysia is the optimum spot."

For example, The Acer Group, the island's largest PC manufacturer, has moved production overseas, and Mitac, Inc. has a PC plant in China.

This means that the Taiwanese will have to learn how to compete on something other than price.

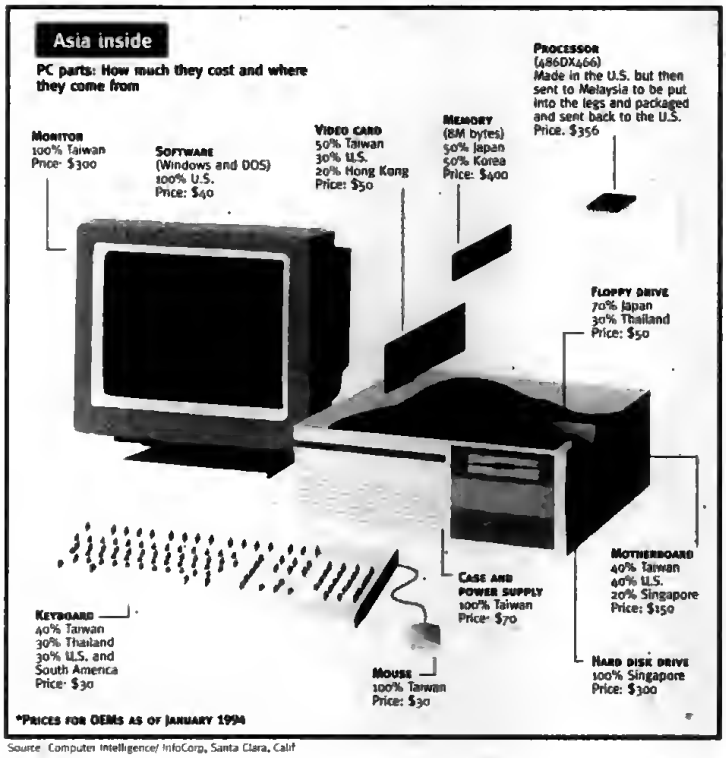
"This is Taiwan's problem: The only thing they know how to compete on is price. They don't know how to do anything else," said Andrew M. Seybold, editor in chief of the "Outlook on Professional Computing" newsletter.

The Taiwanese have some ideas, though, including the following:

- Shifting from being original equipment manufacturers to original design manufacturers (ODM), meaning they would do product design and manufacturing, which would give them more control over customer accounts. It would also prevent customers from dropping one supplier and moving to another or away from Taiwan entirely.
- Focusing development efforts on new markets such as IBM's PowerPC or personal digital assistants.
- Getting into the software business, largely through cooperation with U.S. companies.

The ODM direction holds the most promise for the Taiwanese, who generated $9.7 billion in hardware sales last year. The Taiwanese are hawking their expertise in engineering, components and design to try to build long-term relationships with customers.

"Going ODM gives us control," said Ing-Jen Lee, vice president and general manager of sales and research and development at Twinhead, Inc. in Hsin Tien, a Taipei suburb. If a customer drops a product or does not meet order commitments, "we can just change plastics and go sell to someone else," Lee said.



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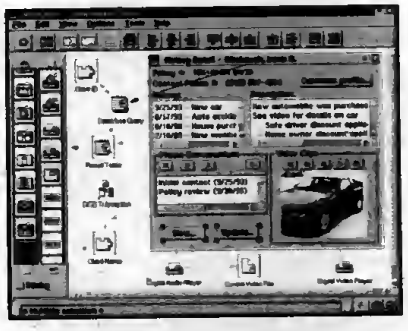

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ISSC services hitting the mark

CONTINUED FROM PAGE 1

Industry-specific expertise has helped ISSC and other IBM services units land significant contracts in the three years since IBM first embarked on a revenue growth strategy that cast services in a leading role.

For example, Southern Pacific could have been satisfied with any of its bidders, Matthews said. But he and other members of the selection committee felt IBM's railroad industry expertise — combined with ISSC's aggressive approach — clinched the deal.

"ISSC was hungry. They demonstrated to us that they would be totally committed to making this a success," he added.

Another example can be found at the University of Miami, which selected the IBM Consulting Group two years ago to help it create a strategic IS road map. M. Lewis Temares, the school's vice president of information resources, said he was impressed with his IBM account manager's thorough understanding of the information technology requirements facing academia.

Tom Trainer *plans to overhaul Reebok's global telecommunications infrastructure*

"What was particularly good was that they didn't try to tell us how to run our business," Temares said. Rather, the IBM Consulting Group "guided us in the right direction."

Outsourcing dropout

Perot, meanwhile, has all but dropped out of the outsourcing business, according to a company spokesman. "We've fallen from outsourcing because we don't compete well with IBM. We don't have the deep pockets," he said.

Two years ago, Perot tried to set itself apart from other outsourcing vendors in the transportation industry when it hired Charles Feld — the chief information officer at Frito-Lay, Inc. — to oversee its transportation services push and help it win a facilities management contract with Burlington Northern Railroad Co. But after less than two months on the job, Feld left Perot to become interim CIO at Burlington Northern.

Several IBM customers said they had signed contracts with various IBM services units to exploit the technology overlap between IBM divisions.

Reebok International Ltd., for example, has worked extensively with ISSC on assorted projects and is considering the outsourcing unit as the prime contractor in a forthcoming project. The Stoughton, Mass.-based athletic shoe maker plans to overhaul its worldwide telecommunications infrastructure, according to Tom Trainer, vice president and CIO.

Trainer said Reebok has been discussing the project with several telecommunications vendors, including Sprint Corp., AT&T Corp., ISSC and Advantis, the joint venture ISSC formed with Sears, Roebuck and Co. in 1992 to provide data and voice networking.

Looking for experts

For Washington Mutual Savings Bank, a Seattle-based bank with 230 financial centers in Washington, Oregon and Idaho, the choice of the IBM Consulting Group in July 1992 to help re-engineer its loan processes was based on the group's expertise in banking.

Though several Big Six accounting firms had approached the bank about the project, IBM Consulting Group "knew what they were doing; they had done it before, and it fit into our culture," said Liane Wilson, executive vice president of operations and administration at the bank, which has $16 billion in assets.

Since its inception in May 1991, ISSC has landed more than 100 outsourcing contracts, including deals with Southern Pacific, Amtrak and McDonnell Douglas Corp., according to Dennis M. Welsh, IBM vice president and general manager of its Industry Solutions group.

In the first quarter this year, IBM signed more than 4,000 U.S.-based services contracts, Welsh said, including deals to provide systems integration, maintenance and technical-support services. Analysts placed ISSC's 1993 revenue at $4.5 billion.

For its part, EDS claims to have services expertise in 39 industries, including manufacturing, energy and telecommunications, according to Gail Rigler, director of marketing at the Plano, Texas, systems integrator.

"One of the areas I believe has set us apart with customers is the fact that we have people who are extremely experienced in [each] industry, not so much in hardware or software but in providing the services that meet the needs of that industry," added Rigler, who declined to disclose examples of EDS contracts awarded due to industry expertise.

Fighting back

Several company insiders said they believe IBM's recently renewed effort to repeal the 1956 Consent Decree is part of a master plan to place ISSC under IBM's corporate mantle as IBM's worldwide sales organization shifts to an industry-focused customer account model in the next three to five months.

IBM executives, however, dispute those claims. "ISSC is still more efficient stand-alone than it would be as part of IBM," Welsh said.

Analysts said they believe IBM's efforts to have the Consent Decree abolished are based on a desire to eliminate market confusion. "I think [IBM Chairman Louis] Gerstner wants to place the IBM moniker on all of its services units and take advantage of that strong brand identity," said Julie Schwartz, director of professional services at Dataquest, Inc. in Framingham, Mass.

Under the decree, IBM's services subsidiaries are not allowed to carry the IBM name, nor are they permitted to receive any price breaks on equipment.

Sam Palmisano, ISSC's president and chief executive officer, recently said the abolition of the Consent Decree "would help our competitive posture dramatically." Plus, with competitors such as Affiliated Computer Systems and Sungard Data Systems, Inc. having filed antitrust claims against IBM in recent years, the company has yet another reason to push for the dismissal of the court order, analysts said.

Too close for comfort

For example, ISSC continues to tap IBM salespeople to help it land deals. That type of relationship is a little too cozy for some of its competitors.

"What IBM is doing with ISSC is walking on egg shells," Schwartz said. "Whenever they do new business, they have to consider the Consent Decree, and it would be nice for them to get this monkey off their backs."

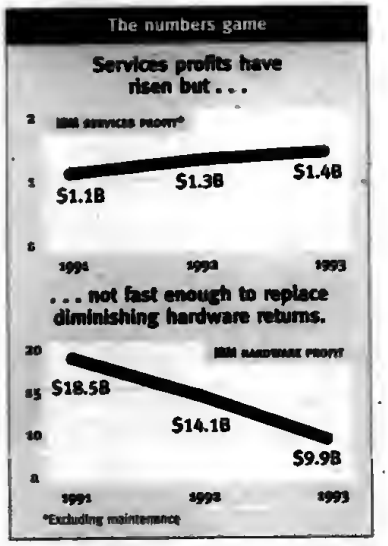
> "ISSC was hungry. They demonstrated to us that they would be totally committed to making this a success."
> — Thomas J. Matthews, Southern Pacific

IBM also appears to have erased much of the doubt surrounding conflict-of-interest issues with other vendors doing business at its user sites. For example, under the McDonnell Douglas contract, ISSC is managing nearly 30,000 desktop seats for the aerospace giant, including Intel Corp., Motorola, Inc. and Hewlett-Packard Co. workstations and PCs.

"There's a willingness by IBM to be absolutely flexible," Trainer said. "They haven't come in with a cookie-cutter approach. They will literally take a systems integration job with DEC or HP equipment."

A telling sign of that flexibility, Trainer added, lies in IBM's reconstructed compensation structure.

Trainer pointed out that "55% of our IBM account managers' compensation is based on meeting customer satisfaction."



Profitability peristalsis

As IBM works to recover from its devastating $8 billion loss last year, its services businesses are facing increased pressure to deliver higher profitability more quickly, according to sources close to the company.

Even though gross profit margins for IBM's services were a healthy 14.7%, or $1.43 billion, last year, analysts remain cautious about IBM's ability to replace its once-vaunted hardware profits with services income. IBM's services are "headed in the right direction, but they haven't turned the corner yet," said Marc Bulkin, chairman of Meta Group, Inc. in Westport, Conn.

Other industry observers said they believe ISSC underbid on many potential outsourcing contracts in its first two years as part of its effort to establish a customer base. ISSC tallied an estimated $4.5 billion in revenue last year.

Robert C. Thompson, general manager of the Finance Industry group at IBM U.S., disputed claims that ISSC underbid on contracts to win market share. But he acknowledged that IBM "in some cases may have underestimated the size" of individual outsourcing contracts.

Thompson added that the newly cost-conscious IBM is now "bidding competitively but in a way that won't surprise us six months later."

While many industry pundits have a bearish outlook on ISSC's profitability, the outsourcing unit's 30%-plus revenue growth in each of the past three years "has unquestionably been the most successful part of IBM," said Robert Djurdjevic, president of Annex Research, Inc. in Phoenix.

—Thomas Hoffman

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Briefs

Dell explains uptick

At a shareholder meeting last week Dell Computer Corp. Chairman Michael Dell attributed the firm's improved financial results for the second half of fiscal 1994 to a companywide focus on liquidity and managed, profitable growth. He said many of the product and infrastructure challenges that have plagued the firm were being fixed. Dell also expressed "guarded optimism" regarding longer-term growth.

BBN to buy BARRnet

Bolt, Beranek and Newman, Inc. (BBN) said it will acquire from Stanford University the Bay Area Regional Research Network (BARRnet) for an undisclosed sum. The deal will let BBN merge its New England NEARnet operation with BARRnet, creating a bicoastal provider of Internet services.

DEC confirms talks

Digital Equipment Corp. confirmed it is negotiating with MCI Metro to purchase Digital's internal fiber network and associated equipment. The talks are fueling further rumors that MCI will take a minority stake in Digital. In related news, another Digital executive has resigned: Adriana Stadecker, former vice president of executive operations and a close aide to Chief Executive Officer Robert Palmer.

SHORT TAKES Bell Microproducts, Inc. withdrew a planned public offering "in light of the reduced trading price of the company's common stock." ... The storage unit at Digital changed the name of its OEM disk and tape business to Avastor. ... Equifax, Inc. said it will acquire FBS Software in a stock-for-stock transaction. ... Electronic Arts founder W. M. "Trip" Hawkins will not stand for reelection as chairman. He reportedly plans to refocus on his multimedia start-up 3DO Corp.

Lotus stock takes it on the chin

Lower earnings trigger backlash

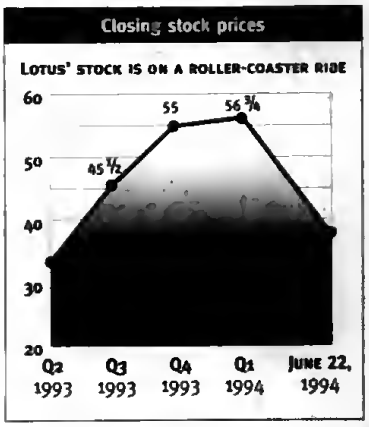
By William Brandel

■ Demonstrating an increasing vulnerability in the desktop applications market, Lotus Development Corp. last week told a clearly disappointed Wall Street that it would not meet analyst projections for its second quarter due to lackluster sales of its desktop products.

As a result, the Cambridge, Mass., developer said it expected to report sales of approximately $1.80 to $2 per share for its fiscal year. Analysts had expected $2 to $2.15 per share for the 1995 fiscal year, and the market responded to the news by harshly punishing Lotus' stock.

Chief Financial Officer Ed Gillis said Lotus would now report revenue of $240 million to $250 million for its second quarter ending July 2. Lotus is slated to report its official earnings for the quarter on July 19.

The day after the announcement, Lotus' stock plunged 13.5 points — a drop in value of more than 25%. At $37, the company's shares are now worth less than half the $86.50 share price they fetched on March 18.



Who's buying?

"Lotus has a demand-side problem for its desktop products," said Paul Johnson, an analyst at Robertson Stephens & Co., a Wall Street brokerage. Desktop applications provide about 70% of Lotus' sales. Johnson has lowered his estimate of Lotus' 1995 fiscal year from $2.20 per share to $1.80 per share.

Although Lotus termed the expected revenue drop a "one quarter" issue, Johnson said Lotus' problem is exacerbated by the loss of market share to Microsoft Corp. applications and an overall revenue growth slowdown in the Windows application market.

The company is perceived as being under increasing pressure from Microsoft, and soon WordPerfect Corp., for the desktop applications market. Microsoft shipped a new version of its Office application suite, Version 4.1, earlier this year. Microsoft dominates between 75% and 80% of the desktop applications market. WordPerfect is expected to deliver a dramatically improved version of its application suites in the coming weeks.

Expected shipments

Meanwhile, Lotus will not refresh its SmartSuite and desktop applications until August. It said it would ship 1-2-3 for Windows Version 5.0, 1-2-3 for DOS Version 4.0, Approach 3.0, Freelance Graphics 2.1, Ami Pro 3.1 and the new SmartSuite before the end of August.

Also, there is some concern that Lotus customers might skip this latest round of upgrades to wait for versions based on Microsoft's forthcoming next generation Windows environment, called Chicago. As a result, some analysts are skeptical that the revenue shortfall will be limited to one quarter.

Johnson said he did not expect the stock drop to kill Lotus' intended acquisition of SoftSwitch, Inc. The deal calls for Lotus to pay 1.3 million shares for the company. It is expected to close in August.

Lotus prepares SmartSuite upgrade. See page 40.

Microsoft settles for piece of the Stac

By Stuart J. Johnston
REDMOND, WASH.

If you can't beat 'em, buy 'em. That appears to be the message Microsoft Corp. put out last week when it announced it had settled its long-running patent and trade secret dispute with Stac Electronics.

Under the terms of the settlement, Microsoft agreed to purchase 15% of the Carlsbad, Calif.-based disk compression technology firm for $39.9 million and to pay an additional $43 million in royalties at a rate of $1 million per month.

Both companies dropped their court-awarded judgments against the other — $120 million against Microsoft and $13 million against Stac — and agreed to cross-license each other's technologies.

Don't worry

Microsoft officials said it is still unclear whether Chicago, the company's next version of Windows, will include Stac's data compression or a similar technology Microsoft developed itself and released earlier this month in MS-DOS 6.22 [CW, June 13]. Officials did say, however, that users should not be concerned because Microsoft will provide whatever support is necessary.

Rocky road

Events preceding the Stac/Microsoft deal include the following:

January 1993 — Stac sues Microsoft for patent infringement.

February 1993 — Microsoft countersues.

February 1994 — A California jury finds Microsoft guilty of patent infringement and Stac guilty of trade secret theft; grants Stac $120 million and Microsoft $13 million.

June 1994 — Judge orders Microsoft to recall all copies of MS-DOS 6.0 and 6.2.

June 1994 — Microsoft and Stac settle; Microsoft buys 15% of Stac and agrees to pay royalties; both companies cross-license technologies.

In February, the Redmond, Wash.-based software Goliath lost a court challenge that charged that the DoubleSpace disk compression in MS-DOS 6.0 and 6.2 infringed on Stac's Stacker technology.

Earlier this month, a federal court judge granted Stac — which had loudly compared itself to the biblical David and its suit to a moral battle with the forces of evil — an order forcing Microsoft to recall all unsold infringing products worldwide. That included OEM PCs with preloaded DOS as well as shrink-wrapped copies on store shelves and in warehouses.

Symbiosis

Under last week's surprise agreement, the two companies have access to each other's disk compression technologies for a period of five years. Stac also received a license for Microsoft's DOS preload feature. Stac's copying of that feature had led to a jury verdict in February concluding that Stac had stolen Microsoft trade secrets.

Paul Maritz, Microsoft senior vice president of systems, said the company chose to settle in order to end any concern on the part of customers and users.

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Hype-ochondria

About eight years ago, one of our writers would show up daily, strap on a weighty lead shield that resembled a flak jacket and lower her several-mnoths-pregnant self into her chair to work.

Scared silly by groups like the National Organization for Women and 9 to 5, this woman believed that harmful radiation emanating from her computer screen would endanger her child. Despite the fact that there was no credible evidence to that end. Despite the fact that the TV she and millions of others watched oightly emitted more "harmful" radiatioo than did the VDT.

Do you ever wonder why the furor over VDT emissions petered out to a barely audible whimper? The hysteria was quelled by a lack of evidence.

More recently, the ergooomics movement has drawn a bead on repetitive stress injury (RSI), a very real disorder caused by faulty keyboard design and/or bad typing habits. This time it isn't national groups but various vendors that are trying to exploit the situation.

Specifically, there's a flood of products designed to ease the pain of RSI. Yet many of them do not work as represented, and some can even exacerbate the symptoms of RSI [CW, June 6].

Responsible ergonomics experts recommend solutions that are surprisingly similar to what the same responsible people said about the workplace symptoms erroneously attributed to VDT radiation — common sense about posture, lighting, work breaks and ergonomic furniture.

Wherever hysteria can be created, there will be those ready and willing to exploit it. Better to bead them off at the pass and make the workplace more productive with reasonable approaches to safety.

*****

Corps solution

Recently in this space we put out a call to arms to IS professionals to get directly involved with public education by sharing their knowledge and time with local schools ["Back to school," CW, May 30].

Computerworld is working with the White House Office of Science and Technology oo the U.S. Tech Corps, a proactive effort to help local schools implement technology. Through our publisher, Gary Beach, we are seeking comments and input from business and IS leaders as well as from government officials.

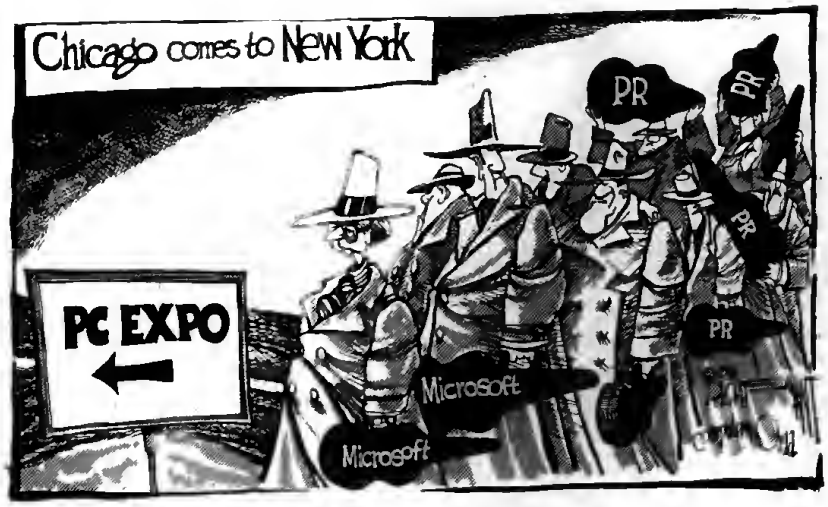
The bottom line is this: Throughout the country a combination of tight budgets and a shortage of technoical skills are coospiring to forestall computer education and deprive tomorrow's leaders of tools they'll need to compete.

Modeled after the Peace Corps, the U.S. Tech Corps will rally the skills of some 1.9 million computer professionals to assist schools in planning and implementing information technology with the most valued contribution of all — time and expertise.

If you want to be a part of this effort, share your ideas with us by writing to Gary Beach on the Internet at ustech@cw.com. Let's roll up our sleeves and do the right thing.

Bill Laberis

Bill Laberis, *Editor in Chief*



This API is no help

I hope Frank Dzubeck was misquoted or misunderstood in "IBM eyes new APIs" [CW, May 30]. If not, then it appears IBM still just doesn't get it. Developing applications to take advantage of an operating system is inconsisteot with providing value to end users or application developers

The microkernel, like mainframe VM, exists to leverage existing applications onto a hardware platform by running multiple operating environments concurrently and transparently (VM called them virtual machines; the microkernel calls them personalities). The microkernel advantage is much less obvious to an end user or application developer.

As an end user, I don't believe I want or need multiple personalities on my desktop. To the extent that an applicatioo has to be "adapted" to the microkernel, its value to me, and to the application developer, is diminished.

Until there are hard delivery dates and verifiable performance data, i'll be able to cootain my enthusiasm for the microkernel.

Bob Blake
Ridgefield, Conn.

Have faith in CA

I need to clarify my comments that appeared in your May 30 issue ["ASK customers ponder future of products following CA buyout"].

As an ASK MANMAN customer, i am naturally concerned over the direction that Computer Associates will take with the assimilation of The ASK Group. However, the article makes it appear that i do not believe that CA has any hope of building a positive relationship with the current installed base. This is untrue.

In my discussions with CA and ASK, they have committed to continuing the superior relationship ASK has enjoyed with its customers. Radical staff reductions in the R&D and customer service areas would not support this pledge, and I do oot believe it is their current plan.

It is in the best interest of my company and of other ASK users to ensure that CA meets its commitment to customer sstisfaction. I encourage all ASK customers to approach the acquisition with an open mind and to provide CA with direct, constructive feedback on its progress.

Michael Campbell
Fremont, Calif.

Spread the word

Your editorial about donating computers to local school systems ["Back to school," May 30] is right on target. The donation of your old equipment to schools is a wonderful idea, particularly if there is someone in these schools with the knowledge to put the equipment to use.

There are also many fine nonprofit organizations that would be grateful for your donations. There are many people oot there who have never had the opportunity to learn.

Clemma C. Wilson
Atlanta

Tests won't tell all

Regarding "Industry debates certification" [CW, May 2], there is no substitute for talent and experience. No licensing test can prove it. A test also won't prove that the license holder has that other necessary ingredient — commoo sense.

I've known folks with computer science degrees who can't debug their way out of a paper bag and MBAs who lack common sense and whose system designs are too convoluted to work. By the same token, there are many in the profession without degrees who are absolotely outstanding developers.

Mandatory licensing will create yet another government bureaucracy at taxpayers' expense. It will probably increase the rates the license holders can charge for their services. What it won't do is accomplish its primary purpose — ensuring robust, bug-free software products.

Sue Latana
Concord, Calif.

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(c) OS/2 (g) Windows
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Can we talk — in person?

David Davenport

I've finally given in. After fighting it for years, I now have E-mail. And voice mail. And a fax machine. With a computer at the office, one at home and a laptop for the road, I'm wired and networked to the hilt, loaded for bear in this fiber-optic world.

You know what I've discovered? Everybody's sending me information, but nobody talks to me anymore. The great irony is that with all we hear about the information superhighway and data streaking across the world, people are hunkered over their workstations and are talking to one another less and less.

People may often make it through a day without any person-to-person communication.

This struck me most powerfully one day when I got up from my whiz-bang workstation and decided to engage in that ancient ritual of leadership, "management by walking around." With 1,000 people working where I do and 7,500 student customers, this has been a useful way to stay in touch.

Five years ago, when I walked through the administration building, 75% of the people would look up from their work and talk to me. This time, all eyes were focused on cursors — there wasn't a moment of human contact. So much for my walk.

Later it occurred to me that many on that particular floor are fund-raisers and public relations people whose constituencies are beyond our walls. How, I wondered, can we make the personal contacts and connections that warm people toward our institution if they're using only computers, faxes and E-mail? We can't.

The trick about all these devices is they make you look like, and even feel like, you are communicating when often you are not. After tapping keyboards and communicating through modems all day, we can go home properly exhausted and feeling effective, the warrior class of the new information age. In fact, those of us in people-oriented fields now often make it through a day without any person-to-person communication.

We cruise on the information superhighway, but lo and behold, most of us no longer deal directly with one another, and the person-to-person side of our work is becoming the road less traveled. On my university's organizational chart, I have moved from the box at the top of a pyramid to a dot in the center of a circle. Part of the reason for this nonhierarchical arrangement is to foster communication. But what I'm finding fostered is more communication, not better. Sometimes I feel like the "Midnight Cowboy" who left the quiet ranch for New York, only to find that "everybody's talkin' at me." Except they're faxin', E-mailin' and voice mailin' at me. More talkin' at me would be welcome!

In the future, more people will work from home. We'll share data and coexist on interactive, on-line, electronic networks. Translation: User friendliness will replace people friendliness. Not to worry. The breakthrough with CD-ROM into virtual reality may lead us to virtual relationships.

Add it up and we're redefining the word communicate. We don't talk; we share data. Yes, we are transcending the barriers of time, space and form. But that had better not make the handshake obsolete. Looking up from the computer screen, talking to our colleagues and actually calling on the customer still work better than anything so far from Microsoft.

They say it is the simple idea that has staying power. How about this: We all switch our computers off for one hour tomorrow and talk.

Davenport, an attorney, is president of Pepperdine University in Malibu, Calif.

Business objects: The key to interoperability

Patricia B. Seybold

What are the two toughest issues facing most of us today? Delivering useful, timely information to our businesses and downsizing our legacy applications to lower-cost, more flexible platforms.

Most organizations are making progress in both areas, but the process is slow and painful. However, you can speed up the pace by focusing on business objects.

Business objects are the terms your business people use each day — terms such as "retail customers" and "distributors." They may be artifacts such as "insurance policy" and "contract." They may be actions such as "withdrawal" and "deposit" or concepts such as "risk management," "benefit" and "asset."

"Now wait a minute," I hear you saying. "Are these business objects any different from the data dictionaries I already have?" Yes and no. It's true that business objects sometimes map to existing data definitions for concepts such as "customers" and "products." But many of these concepts and actions are *not*, in fact, codified in any dictionary. They are stored in the mental models of your business people, and there are undoubtedly several alternate and equally legitimate definitions.

For example, at an organization such as Citibank, the definition of "risk management" will vary by product line and by geography. It is very difficult to objectify on a global basis. And it probably can't be homogenized into one simple formula to be applied across the board.

An information warehouse or a meta-data dictionary in a repository is not going to capture the real assets of your business — the codified knowledge of the people who make up the organization — unless you realize that your job is to serve the business, not the programmers. On the other hand, if you do define your core business processes, key business rules and information objects (there won't be more than a hundred or so) and store them in an easily accessible (by business people) and revisable form, you'll have a truly useful repository of reusable corporate knowledge.

A well-executed business objects strategy gives you a truly useful repository of reusable corporate knowledge.

So how do you capture and codify your business objects? First, it's important to do this work as part of an actual development project, not as an intellectual or infrastructural exercise. Business objects will pop up during any business process redesign effort.

Another way to capture business object definitions is in the design of executive or employee information systems (EIS). What are you doing when you design an EIS? Capturing employees' mental models in software and mapping those against legacy data.

Once you have business objects, they provide the keys to unlock your legacy data. Business users are telling you which information objects are meaningful to them. Often, you can deliver those objects to the desktop through a simple query. At other times, you can encapsulate legacy operations such as CICS transactions. Generally, you'll need some form of middleware to encapsulate legacy data as objects and integrate it into your new applications.

So start capturing business objects as a by-product of your business process redesign and your decision support activities. You'll be building a valuable asset for your company.

Seybold is president of Patricia Seybold Group in Boston. Her Notes address is Patricia Seybold@PSOCG. Her Internet address is PSeybold@PSGroup.com

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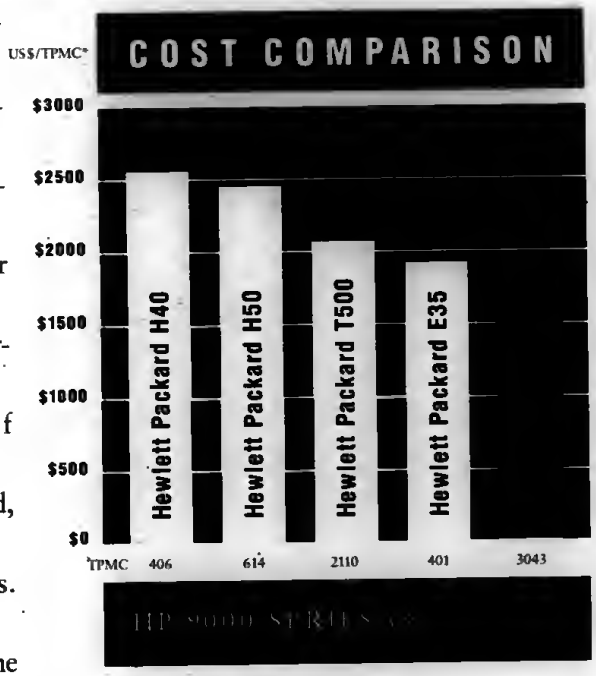

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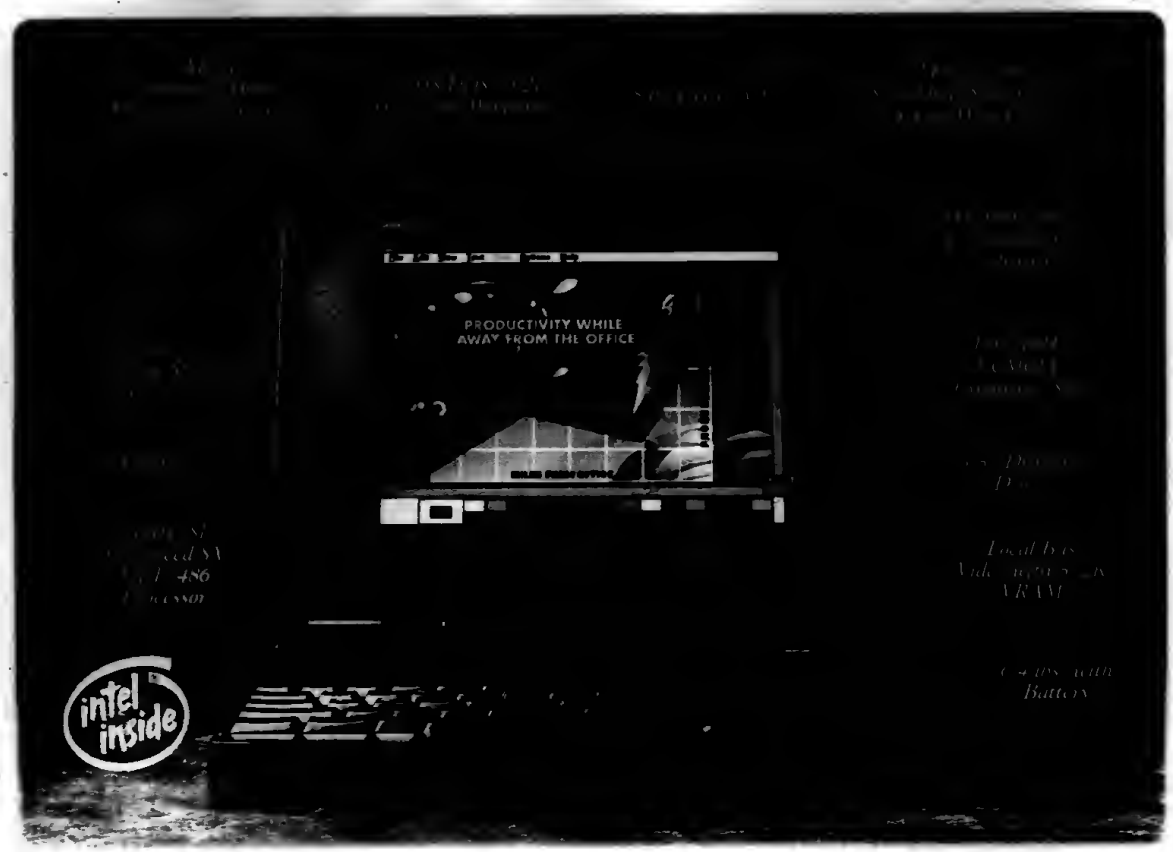

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PCMCIA cards carve out their future

By Michael Fitzgerald

What small item acts like a desktop add-in card, is everywhere and nowhere at the same time, and has no name?

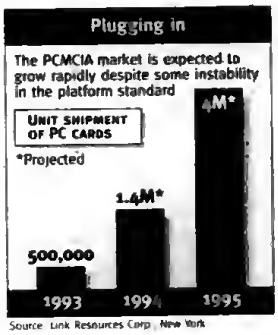
The answer is a PC Card compatible with the PCMCIA standard. The roughly credit card-size devices are becoming ubiquitous: Dataquest, Inc. projects that 86% of all portables shipping this year will have a PCMCIA slot, and forecasts for PC Card sales range from 1.4 million to 7 million or more this year. But because they typically sit inside a system, much like add-in cards, the cards tend to be out of sight — hence, nowhere at all.

As for the name, well, PCMCIA is a tongue-twister. The current favorite of the Personal Computer Memory Card International Association (PCMCIA), PC Card, may or may not catch on. But the cards themselves seem to have a guaranteed role in the future of computing.

closer OK
PC Cards

A problem child

Despite the seeming success of the PC Card, some say it still has to prove itself as a standard, particularly because the cards are not as interoperable as floppy disks. The industry at times seems to view PCMCIA as some temperamental wunderkind with great promise as an add-in card, memory device and interface to all sorts of peripherals. The industry expects it to mature into a stable standard.



Source: Link Resources Corp., New York

But if the PC Card does not continue to mature, it could become a problem child, analysts said.

"If [interoperability] doesn't improve from now to the end of the year, we may have to reexamine the whole PCMCIA issue," warned Andrew Prophet, principal at AP Research, a PCMCIA consultancy and market research firm in Cupertino, Calif. Prophet emphasized that he is "optimistic things will improve," and he even predicted that PC Card sales will double next year.

Interoperability a must

Despite the fact that PC Cards are not floppy disks and do not serve the same functions, "in the long run, floppy disk interoperability is critical" to increasing sales, said Michael French, an analyst at Link Resources Corp. in New York. "It's still being bought by techie people who will spend time to make it work right. If you're going to reach a larger market, you have to get it so it's real easy to use, which is a Plug and Play concept."

One "techie type" agreed.

"If they have a standard, you'd think they could have a standard" driver format, grumbled Michael Radigan, manager of the Nova sales force automation project at Xerox Corp. in Rochester, N.Y. Radigan said his company had to get a special driver to run a Megahertz Corp. PC Card modem on its IBM ThinkPads.

Radigan also said PC Card drivers take up too much base memory, making system configuration difficult. He said Xerox may choose to go back to an external Ethernet adapter rather than use a PC Card version.

"It simplifies the PC configuration," he said.

Tony Wutka, PCMCIA chairman, said the memory issues are related to the EMM386 memory manager in the DOS operating system but that PCMCIA gets blamed for problems. He said Microsoft Corp.'s Chicago, the next version of Windows, should relieve the memory issues around PCMCIA drivers.

In the meantime, PC Cards, which serve as either system memory or as I/O devices, have seen their widest use in portables as add-in cards.

"We use both of the PCMCIA slots in the ThinkPad," said Enrique Crespo Jr., manager of corporate sales systems at The Torrington Co., a maker of bearings in Torrington, Conn. The company recently rolled out IBM PC Co. ThinkPad 755CS notebooks to its sales force. Each has a fax/modem card and an Ethernet LAN adapter card.

Most systems offer at most two PCMCIA Type II slots, stacked on top of each other to let one Type III device fit in the slot. Some PCMCIA vendors have begun shipping combination cards that include both devices, thereby freeing up a slot, but Crespo and other users said they are not exactly sure what types of functions they would address with the extra slot.

Crespo, for instance, said he thinks memory cards are too expensive but that pager cards have some intriguing potential — with the emphasis on potential. Similarly, he is interested in the possibility of sending out large files or software upgrades on a Type III hard drive. This would potentially save money compared with the cost of downloading files over the telephone.

In addition, there are a myriad of new types of cards coming out — sound cards, VGA connectors, global positioning systems and wireless modems — so it would be detrimental to the standard if users had strong doubts about its stability.

Wutka said the various PC Card specifications are largely stable, and analysts, for the most part, agreed. The PCMCIA chairman said several things should happen by the end of the year to make the cards more interchangeable, starting with the next version of the standard, code-named Berlin.

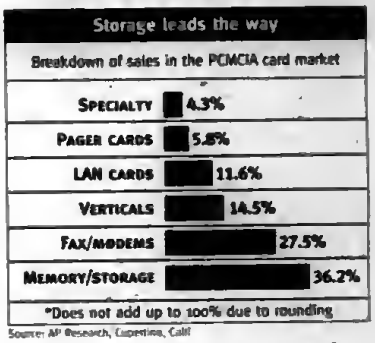
The PCMCIA plans to release Berlin in the September/October time frame. While it may not lower walls for all PC Cards, it should help significantly.

Berlin's main features include the following:

- An enhanced Card Information Structure that all PC Card makers will be required to build into their cards. This feature will be the main factor in improving interoperability, particularly in Plug and Play systems.
- A 3.3V capability to reduce the PC Card's power drain on portable batteries.
- A 32-bit bus structure, which will let PCMCIA cards do bus-mastering — which could lead to advanced multimedia functions for a range of portable devices.

The PCMCIA's biggest concern with Berlin is reassuring users that it will not render existing cards obsolete. PCMCIA officials insisted this will not be the case, though they acknowledged that some of today's cards may not work in tomorrow's systems because of wattage or voltage.

"It's like this: a 486 can run Windows, but a 486 with only [2M bytes] of memory is not going to run Windows but may be able to do other things well," Wutka said.



Source: AP Research, Cupertino, Calif.

In terms of PCMCIA, this means that a hypothetical handheld system designed to run only 3.3V cards will not accept any 5V or 12V cards on the market.

Brendan McGuire, the PCMCIA's executive director, added, "I want that [interoperability challenge] to continuously be there because it means things are happening that are stretching the standard."

Microsoft's Chicago, which will have built-in PC Card support, is also expected to solidify the PCMCIA standard. Industry watchers say Plug and Play and other ease-of-use features will solve the last major riddle involving PC Cards.

PCMCIA growth

In the four years since the PCMCIA released its specification for PC Cards, the slots that serve them have become virtually standard in portables.

Large notebook vendors such as Toshiba America Information Systems, Inc. and AST Research, Inc. have had PCMCIA slots for the better part of two years. Longtime holdouts Compaq Computer Corp. and Texas Instruments, Inc. in the last six months have spread PCMCIA throughout their portable product lines.

Even Apple Computer, Inc.'s new PowerBook supports PCMCIA. Hewlett-Packard Co. even puts PCMCIA slots in some desktop systems, something that IBM PC Co. and Dell Computer Corp., among others, are expected to do later this year.

The market has drawn contenders from all corners. Analysts estimate that between 200 and 300 PC Cards are on the market right now, the bulk devoted to fax/modems and LAN adapters. But any given week seems to see several more cards either announced or shipping.

For instance, a random sampling from the last two weeks shows that Megahertz Corp. released a combination Ethernet Adapter/Fax/Modem card and announced a V.34 modem. Zenith Data Systems unveiled EasyPlayer, a portable CD-ROM drive that connects to notebook computers via the PCMCIA socket, and Datasonix Corp. in Boulder, Colo., said it would release a PCMCIA version of its new handheld tape backup system before year's end. — *Michael Fitzgerald*

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Lotus to unveil SmartSuite 3.0

By William Brandel

Lotus Development Corp. is preparing to unleash an upgrade of its SmartSuite application set. The suite is expected to be available by the end of the third quarter.

SmartSuite 3.0 for Windows will include the following:

- A revamped rendition of its Approach database Version 3.0.
- An upgraded version of the 1-2-3 spreadsheet Release 5.0.
- An upgraded Ami Pro word processor Release 3.0.
- A revised Freelance Graphics Version 2.1.
- The existing Organizer 1.1 personal information manager.

The four upgraded products are now in beta testing. The suite carries a suggested retail price of $795. Upgrades will be priced at $595 but are being offered for a limited time for $299.

The two leading features of the new suite are better integration between the 1-2-3 spreadsheet and the Approach database and a new SmartCenter application manager feature, said Jack Armstrong, senior product manager for SmartSuite 3.0.

Since SmartSuite sales are largely based on upgrades from Lotus' 1-2-3 user base, Approach is being positioned as a front end to the spreadsheet, not as a data store.

Front-end tool

Coopers & Lybrand in Philadelphia is using the new Approach database as a front end for its Compass application, said Michael Hudlow, MIS supervisor at the firm. This in-house-built application takes advantage of Approach's multiple joins technology to pull down data from a number of disparate databases in Coopers & Lybrand offices nationwide.

Coopers & Lybrand uses Approach as a front-end tool to pull down data from host databases throughout the company. The Compass application, built on Approach 3.0, tracks human resources and project management information when the company is assessing its resource needs for a consulting project. The Approach engine is used to perform queries and data analyses as well as to present the data.

Hudlow said that since Coopers & Lybrand is already a SmartSuite and Notes user, it can use Approach to take advantage of its integration with 1-2-3 and Notes as well.

This integration is achieved through the new SmartCenter feature. SmartCenter provides tools for users to perform cross-application tasks between 1-2-3, Approach or Notes, for example.

By the same token, 1-2-3 has been upgraded to include integration with Approach. Using Approach, 1-2-3 users will be able to perform multidimensional analysis of data and ranges in a spreadsheet.

Enhanced support

With the exception of Organizer 1.1, the SmartSuite applications have all been upgraded to include enhanced support for Notes. The applications will include a new release of the Field Exchange (FX) protocol Version 1.1. The new version of FX lets users perform auto-save functions within Notes. Using this, users can automatically save a document from a SmartSuite application to the Notes database.

Pace quickens on notebook upgrades

By Michael Fitzgerald

Some of the biggest players in notebook computing popped out with new notebooks last week, with Toshiba America Information Systems, Inc. and NEC Corp. leading the way.

Toshiba said it will introduce a new version of its Portege subnotebook and two new versions of its Satellite entry-level notebook, including one that features a multimedia option. Meanwhile, NEC will release a version of its Versa notebook that weighs in at slightly less than 5 pounds. It is targeted at users who are willing to sacrifice modularity and a floppy drive for light weight.

Except for the Portege subnotebook, the new products are focused on entry-level markets but follow different tacks. Toshiba is beefing up its low-end notebooks by adding an integrated trackball, multimedia options, active-matrix color screens and faster processors. NEC is introducing its first entry-level model and is focused on light weight and low prices.

Some corporate users, however, said they were interested in high-end notebooks.

"Prices [on the high end] are coming down to a point where we're hitting our price point with some of the high-end machines," said Michael Radigan, manager of the Nova sales force automation project at Xerox Corp. in Rochester, N.Y.

Typically, high-end notebooks feature faster processors, larger hard drives and more modularity than entry-level products. For instance, many high-end notebooks have floppy drives that can be removed in favor of a second battery.

Analysts said the announcements were a sign of the upgrade philosophy trickling down to notebooks, which are relatively new to the world of modular designs.

Vendors "have learned that moving from one generation to the next doesn't have to be a complete redesign," said Andrew M. Seybold, editor of the "Outlook on Portable Computing," an industry newsletter in Brookdale, Calif. Seybold said users will benefit from this because they will not have to pay the higher costs typically associated with complete product redesigns.

Take note

New notebooks from NEC, Toshiba and AT&T are hitting the market

	NEC Versa S	Toshiba Satellite 2400	AT&T Globalyst 200
CPU	33-MHz 486SX or 25/50-MHz 486DX2	25/50-MHz 486DX2	33-MHz 486SX or 25/50-MHz 486DX2
Weight	4.2 to 5.0 lbs.	6.5 lbs.	6.3 lbs.
Hard drive	210M-byte or 260M-byte	250M-byte or 340M-byte	170M- to 340M-byte
Price	$1,999 to $3,899	$3,099 to $4,299	$2,450 to $4,075

The new Toshiba products exemplify this, Seybold said. The T3600CT Portege is essentially the same as the T3400CT model but has a 8.4-in. active-matrix color screen vs. the 7½-in. screen on the T3400CT. It also has a 250M-byte hard drive and a 25/50-MHz Intel Corp. i486DX2 chip. Due out early next month, the T3600CT costs $4,799, $800 more than a T3400CT with a 250M-byte hard drive.

Answering the users

Steve Lair, Toshiba's vice president of marketing, said the bigger hard drive and faster chip were in direct response to user complaints. "The Portege has not done as well as we wanted in the sales force and field automation project areas," he said.

The new Satellite 2400 series has optional multimedia capabilities, such as a sound card and a SCSI-2 port. With the debut of the AccuPoint device, a licensed version of IBM's TrackPoint pointing device, the product also marks the first time Toshiba has put a built-in pointing device in a full-size notebook. Toshiba has added Fn-ess, a software utility to control keyboard layouts.

NEC's Versa S, meanwhile, starts at 4.2 pounds with a monochrome screen. The S series offers a keyboard that is 98% of the size of a normal notebook keyboard. It also uses IBM's TrackPoint technology in an implementation called SurePoint.

OmniBook trips up on display

By Mark Halper

Although the OmniBook unveiled this month by Hewlett-Packard Co. enhances the performance of earlier OmniBook models, the subnotebook was not all analysts and users had hoped for.

The OmniBook 530 delivers faster throughput and greater storage possibilities than its predecessor OmniBook 430 [CW, June 13], but it does not have a backlit or color display, as users and analysts had anticipated [CW, May 16]. Instead, it incorporates the same black-and-white reflective technology as the Model 430.

"People were expecting a dramatically new product, but this isn't it," said Ted Julian, an analyst at International Data Corp. (IDC) in Framingham, Mass. "I'm sure we'll get one, but I'm not sure when."

HP product manager Marcia Coffey declined to elaborate on HP's future product plans except to say that HP indeed recognizes users' desire for color screens and that the company is "looking into" providing such a model.

Weight not enough

Although the OmniBook won critical praise for an innovative lightweight design upon its introduction a year ago, market acceptance has been slow. For example, the company was unable to break into IDC's list of Top 25 portable vendors last year. Competitors such as Compaq Computer Corp. and Toshiba Corp. have toughened up with their own lightweight and low-priced entries.

Updating the book

	Old OmniBook (430)	New OmniBook (530)
Processor	25-MHz 486SLC	33-MHz 486SX
Hard drive	105M bytes	130M bytes
Floppy	One Type II slot	Two Type II slots
Display	Black and white reflective	Black and white reflective, VGA
Price	$1,399	$1,799

Users such as Michael Budd, LAN manager at Pacific Bell's network technology group in San Ramon, Calif., have objected to the lack of a floppy drive in the OmniBook 430. Without a floppy, Budd noted, there was "too much mumbo jumbo" involved in transferring files from a desktop machine to an OmniBook.

As expected, Model 530 comes with an optional floppy drive, and HP increased mass storage from 105M bytes on the 430 to 130M bytes on the 530. It also added an extra PCMCIA Type II slot and increased memory capacity to 12M bytes.

The enhancements came at a cost, however. The entry price for a Model 530 is $1,799, compared with $1,399 for a 105M-byte version of Model 430. A floppy drive for Model 530 costs $199.

Model 530 includes other differentiators as well. The machine's 33-MHz Intel Corp. 486SX processor supports faster throughput than Model 430's 25-MHz 486SLC from Cyrix Corp. Users urged HP to upgrade Model 430's CPU.

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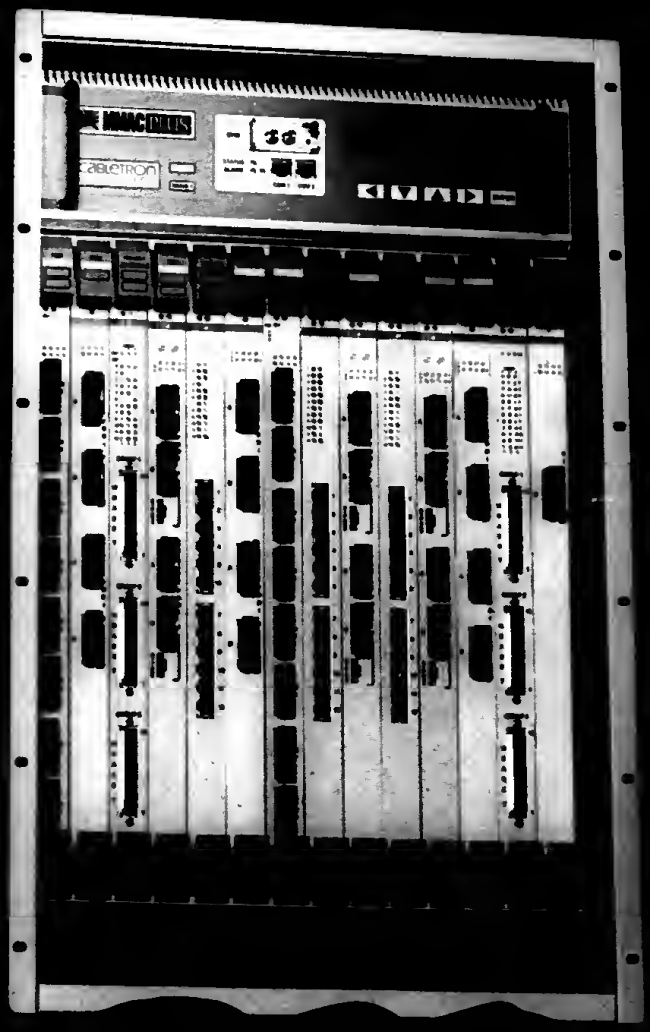

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Jeffrey Henning

The secret of success

The secret of Microsoft's dominance of the Windows application market is not that the company's application developers work closely with the Windows operating system developers. In fact, the secret of Microsoft's success in sales of word processors, spreadsheets and presentation software is that Microsoft developed for the Macintosh before Lotus, WordPerfect or Software Publishing Corp. did

Long before Lotus developed 1-2-3 for the Macintosh, Microsoft pioneered Excel. Long before WordPerfect developed WordPerfect for the Macintosh, Microsoft pioneered Word. Microsoft purchased Forethought's PowerPoint for the Macintosh in 1990, then ported it to Windows. Software Publishing never developed Harvard Graphics for the Macintosh

By developing for the Macintosh first, Microsoft programmers learned the aesthetics of the GUI They created software for the Macintosh GUI for six years before Windows 3.0 came out. Microsoft mastered the nuances of icons, menus and dialog boxes while competitors were still using character-based interfaces.

Lest you doubt the difficulty of developing for a GUI, take a look at the original WordPerfect for the Macintosh, which was an awkward hodgepodge of DOS WordPerfect and GUI conventions. Lotus, with its initial release of 1-2-3 for Windows in August 1991, was also criticized for not having mastered the conventions of the GUI.

In other words, Microsoft dominates the Windows application market because it created best-of-breed applications for the GUI first, not because of any unfair advantage its application developers might have had through close work with its operating system developers.

Microsoft has gone on to solidify its success, redefining the applications market by inventing the suite (by which I mean a collection of applications with rich enough feature sets to be sold separately). This leveraged the strength of its two best-of-breed applications (Excel and Word; PowerPoint has lagged behind other presentation packages) at a time when its principal competitors — Lotus, WordPerfect and Software Publishing — were unable to field one best-of-breed Windows application

Microsoft discovered a customer need and delivered on it before competitors It got where it is today by outsmarting its competitors. Nothing is wrong with that Yet now Microsoft is tempted to defend the position it has won by taking unfair advantage of its Windows operating system Microsoft placed tight restrictions on Windows 4.0 (Chicago) developers, making it difficult for these developers to also support the promised alternative to OLE 2.0, OpenDoc. Such restrictions may be monopolistic and certainly provide no value to Microsoft's customers.

Up to the customers

I don't look to the government to punish Microsoft for such practices. I look to its customers. Many large end-user organizations are tired of a Microsoft that will support only its own standards such as OLE 2.0 and MAPI. Microsoft's reluctance to support other standards makes its products less appealing. This is not and never will be a Windows-only world Users need Windows applications to communicate with applications on other platforms. At times that will involve supporting standards that compete with Microsoft standards. If Microsoft puts Windows first, it may come in second when it tries to meet customer needs.

As for Microsoft's competitors, they should spend less time complaining about Microsoft and more time getting to know their customers. Application developers can compete successfully with Microsoft Look at Intuit, whose Quicken has 65% of the Windows personal finance market, compared with Microsoft Money's 10%. Intuit has achieved this position by pioneering a phenomenally easy-to-use product and by providing excellent technical support

Lotus, WordPerfect and Software Publishing did not develop for the Macintosh in time, not realizing that the lessons they would learn would offer them advantages as the market moved to the GUI These vendors and others need to support new platforms that represent the future, even if those platforms make up only a small percentage of the installed base today Perhaps someday Lotus will dominate the Windows market because it developed for NextStep first, or Claris will dominate the market because it developed for the Apple Newton first

If Microsoft can turn Macintosh development into a strategic advantage, who knows what the future holds?

Henning is the associate director for personal systems and software publications at BIS Strategic Decisions in Norwell, Mass. He can be reached on the Internet at 649-6654@mcimail.com. On MCI Mail, send to 649-6654

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Senior Editor,
Computerworld

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All client-server tools promise you object orientation, a nice GUI, faster development cycles and, of course, faster application run times.

But these tools fail to address the very reason you're turning to client-server apps in the first place: Your corporate survival depends upon your ability to react to rapid change.

Changing customer needs. New internal demands. New competitors. New government regulations.

If your client-server applications can't keep pace with these frequent, real world changes, they're simply not doing the job you need done.

client-server applications that are out-of-date as soon as they're deployed.

ENTERPRISE DEVELOPER DELIVERS BOTH RAPID APPLICATION DEVELOPMENT AND RADICALLY REDUCED MAINTENANCE.

Regardless of what client-server tools you employ, there are certain realities you must face.

Client PCs are inherently unsecure. So all of your business rules must be enforced at the server.

Yet to create a functional user

SCALE,™ the very first client-server framework that totally automates all your client-server transaction processing and data connections.

The SCALE repository is more than just a database. It's your complete

The IRS changes a rule and you find yourself searching through your code to find the place where the rules are enforced. And you get that feeling that you're falling.....

TALKING ABOUT CLIENT-SERVER IS MAINTAINING IT, NOW

They're just another bottleneck.

At Symantec, we're introducing a new client-server development environment that will save your company from the nightmarish experience of creating expensive

Competitive pressures are raining down on your head. Your survival depends upon how quickly you and your company can respond

interface these rules must be applied once again at the point-of-entry in your applications. Encoding these rules at both the server and client level is redundant and very expensive.

Redefining all of these rules across every one of your applications to accommodate a change in your business is nothing short of terrifying.

Symantec Enterprise Developer™ ends this nightmare. Enterprise Developer incorporates

logical data model containing the Entity Relationship diagrams, business rules and data road map of your entire enterprise.

With Enterprise Developer, you define your data model once in the SCALE business model repository. Or, you can quickly reverse-engineer from your existing database catalogs.

Either way, the SCALE transaction processor leverages the information captured in the business model repository to cascade rules to the server and your client applications automatically. SCALE also automates transaction processing, including all master detail processing and it implements optimized retrieval and commit strategies.

So you can focus on building the absolute best feature-set for your users. While achieving true RAD (Rapid Application Development).

Then, Enterprise Developer lets you synchronize your applications with the rules in the repository courtesy of our optional Auto-Maintenance feature. So when

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your forms or their constituent objects are revised, data locations are changed or business rules are modified, and all of your applications are automatically updated.

So your business and your client-server applications can finally keep pace with the changing world.

A new work flow on the plant floor sends your entire client-server application spinning out of control: How much time do you have to devote to mastering the intricacies of transaction coding in a first-generation tool?

POWERFUL PROGRAMMING BY EXCEPTION.

Using a programming by exception model, Enterprise Developer lets you design robust and complex client-server applications in minutes.

You can extend or override the default processing with your own custom logic, or you can use the open architecture to access external objects and programs for added flexibility and power.

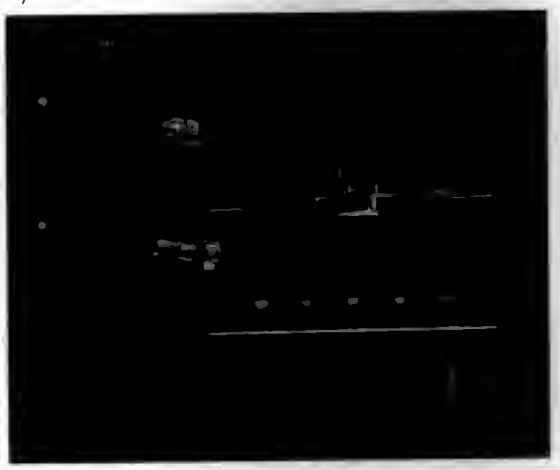
Built-in modules include a graphical Entity-Relationship data modeler, 2-D and 3-D business graphics, our SCALE*Script* 4GL, comprehensive report writing capabilities, a 100% DB2-compatible XDB local database engine, ODBC database connectivity and a truly powerful debugger with robust Breakpoint Manager.

In addition, there's a complete set of run-time functions pre-built for entry and report forms, including Look-Up and Drill Down for data analysis, as well as Browsing, Multi-level Scrolling and Query by Form.

And there's built-in optimistic concurrency to prevent lost updates while maintaining concurrent user access. So everyone in your company always has online access to the most accurate and up-to-date information.

EASY. CREATING IT IS NOT SO EASY. THAT'S A NIGHTMARE.

TEAM ENTERPRISE DEVELOPER. AND SCALE DATA LINKS.



SCALE provides three revolutionary architecture features to speed application development: 1.) Robust business model repository to centralize data models, data locations and business rules; 2.) Optimized transaction processor to automate processing of all your client-server transactions; and 3.) SCALE data links to provide optimized access to major database engines.

Team Enterprise Developer™ lets your entire development team share objects and business models within the SCALE repository with built-in Version Control and an interface to the PVCS interface system.

So you are assured of absolute consistency across all of your client-server applications.

And to give you optimized interaction with SQL Server, Oracle, Sybase, DB/2, ODBC, and all the many gateways to your legacy data on mainframes, there's Enterprise Developer SCALE Data Links.

Our unique SCALE Data Links let you leverage the specific strengths of these individual database engines without compromising application portability. So you can make the most of whatever database systems work best for you.

Bottom line: Our new Enterprise Developer delivers a completely new architecture and development environment designed to let you create the most powerful and the easiest-to-maintain client-server applications in the world today.

So, before you invest in client-server, look beyond the cute GUIs, objects and speed promises. Look at what will happen six months from now.

You just might save yourself from a nightmare you will never wake up from.

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Ask for Ext. 9B22 and request our White Paper: Client-Server In An Enterprise Environment. Also ask about our special $295 competitive upgrade to users of other 4GL tools!

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The competition claims to be ahead by leaps and bounds.

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The QMS® 1725 delivers performance that's 40% faster than many of its competitors in a single user test and 60% faster than network printers in a NetWare® environment test. PostScript™ file tests demonstrate a 2 to 1 advantage in performance over these same competitors.* And its blazing speed is just one of the unique features of this exceptional network printer that has the competition hopping mad. **And now the best is even better!** With the 1725 SLS, you can easily upgrade simply by loading software directly into your printer, virtually eliminating the risks and costs associated with old, obsolete technology. We're talking about adding a whole range of features.. new operating systems, applications, the latest printer advances available. And, if you already have a QMS 1725, an upgrade package lets you add SLS capability to it. Why kiss a frog when you can have a prince the first time! Through the power and flexibility of Crown™ technology, the QMS 1725 and the QMS 1725 SLS perform as network nodes in mixed environments while receiving, interpreting, spooling, storing, compiling, rasterizing, and printing different documents – all at the same time.

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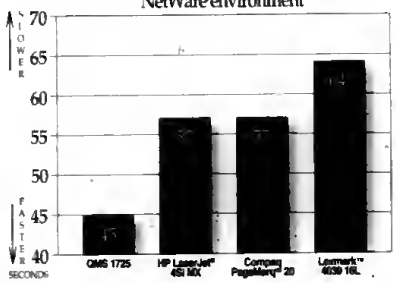

*Source: MWA Consulting, June 1993

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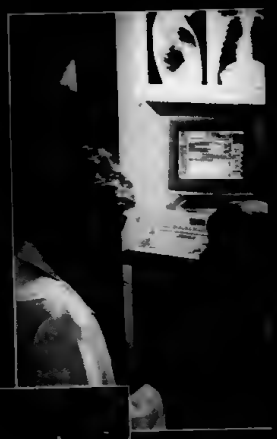
Computing Strategies to Maximize Competitive Advantage



Three Steps to Business Computing Success

WHAT'S INSIDE

Businesses large and small need to use information technology effectively to compete in the 1990s environment of narrow margins and constantly changing market conditions. The Microsoft Solution Provider Program (p. 20) teams independent organizations with Microsoft to help businesses build computing solutions with the Microsoft Solutions Platform of products (p. 18). Businesses such as insurance agencies and law firms need targeted solutions to face their particular problem sets (p. 13). So, too, do other vertical markets and applications. See the following pages for specific examples:

- **Banking** 3
- **Health Care** 6
- **Sales Automation** 12
- **Insurance/Legal** 13
- **Manufacturing** 14
- **Retail** 15
- **Document Management** 16
- **Accounting** 19-20

In the 1980s, the computing industry was still in its relative infancy — and simpler. There were fewer vendors, and in many cases a single, major vendor could supply a company with everything — computers, printers, peripherals and software — plus install, service and support it after the sale.

In the 1990s, things changed. Open architecture made computer systems flexible and, along with price competition, began to make possible a huge array of new products and suppliers. The upside? Today you enjoy more choices and lower prices. The downside? It's more difficult to evaluate and decide among those choices.

How can you integrate information technology into your organization's strategic direction, and keep your company moving in the smartest and most cost-effective technological directions? How do you navigate the maze of platforms, vendors and environments? How can you leverage technology not only for traditional uses, like information retrieval and analysis, but also for functions that may be mission-critical to your industry, such as communications, manufacturing, process control, purchasing and financial management?

Most important, how will your company realize the benefits promised by information technology — benefits such as increased revenue, and enhanced productivity and customer service?

Step No. 1 in developing such a business computing strategy is identifying what problems your organization and your industry face. If your business is product-based, how can you shorten time to market and bolster your sales staff's productivity? If your business is service-based, how can you improve customer response time and satisfaction? Are there ways you can streamline communications and business processes?

Step No. 2 is identifying the available software, hardware and communications systems that will help you address your specific business needs. Many successful businesses are implementing their strategies by building on the Microsoft® Solutions Platform, a complete and available set of desktop and server applications, development tools, graphical programming systems, operating systems, database servers, and products for connectivity, messaging and systems management.

Step No. 3 — designing and implementing your technology solution — calls for rallying both in-house support staff and external experts, including consultants, trainers, developers, value-added resellers, systems integrators, and resellers. Taking advantage of outside experts gives you the best possible resources for speedy implementation and lets you use shrinking internal resources selectively.

Rallying external support

Outside support is readily available in the virtual army of third-party organizations worldwide that can analyze your firm's information technology situation, develop or review a strategy, implement solutions, troubleshoot problems, and help users get up to speed. These experts operate in a broad range of industries and across all computing environments. Microsoft initiated the Microsoft Solution Provider program to create partnerships with more than 5,000 organizations that offer multivendor business solutions and services to Microsoft customers worldwide.

Many innovative companies, such as QuickStart Technologies, Inc., based in Newport Beach, Calif., have built their businesses by helping organizations deploy solutions with Microsoft products. QuickStart's product line, known as Techceleration™, provides accelerated learning for technical professionals on Microsoft technology.

Thousands of third-party organizations are helping customers implement solutions based on Microsoft products such as Microsoft Windows NT, released a year ago. In many of the stories that follow, industry- and company-specific problems are being solved with solutions powered by Microsoft Windows NT, Windows NT Advanced Server, Microsoft SQL Server™, the Microsoft Office and Microsoft development tools such as the Microsoft Access® database management system and Microsoft Visual C++™ development system.

Business computing in the '90s requires a well-thought-out strategy, open best-of-breed products and knowledgeable support that is there when you need it. When all are in place, the increased revenue and productivity benefits follow directly.

For more information on QuickStart, call (714) 476-7575.

The Challenge: show one face to the customer while integrating systems with external support organizations

Bank of Boston's Steve Eastburn chose BancWare's Convergence to support more than 60 of the bank's units worldwide. The system has improved planning by standardizing the common processes and allowing greater access to and understanding of forecast assumptions

BANKING

Banking Systems Deliver Improved Responsiveness

Banking in the 1990s shows a rapidly changing world, where shakeout survivors have achieved economies of scale with lower cost structures and increased returns. The pressure on banks comes from many angles, including a declining volume of bank loans over the last decade and competition from new vehicles offering funding alternatives that may be faster, more flexible, or more available than traditional business loans.

In response, banks are working harder to attract new customers and retain current ones. Many of them have too much capacity and too few customers. As they outsource products and services to third-party organizations for processing, they discover they need an information technology system that can integrate with those external support organizations, yet show one face to the customer.

Also, commercial bankers themselves are under pressure to reduce costs and loan approval times while improving risk management, service and productivity. While they need to find a way to do more with less, they're often impeded by inefficient workflow, inflexible computer systems, and a lack of front- and back-office reconciliation.

Top priority: customer relations

Many established banks that share these dilemmas, and especially need to focus on customer relations, have turned to BancA/Andersen in Dallas for a client-server-based workbench set of tools called Solutions for Commercial Banking (SCB). SCB is a product relationship between Microsoft Corp., BancA Enterprise and Andersen Consulting, based in Chicago, to foster connectivity and capability between Microsoft® products and banking software applications.

"Seventy percent of the gain from reengineering banking processes comes from new technology," says John Humphrey, director of solution engineering at BancA. "Banks can say, 'We want our loan officers to write more loans,' but if officers are still writing on yellow pads and secretaries are typing up their notes, the banks won't see the results they'd see if the officers had laptops and fast access to data," says Humphrey.

Bank analysts will be able to query Microsoft SQL Server™ relational databases powered by the Windows NT™ operating system for loan histories and real-time data, and then download it for manipulation and analysis in Microsoft Excel. Using Microsoft Word and BancA's POWER 1® automated banking application, they can generate proposals and reports that contain the Microsoft Excel data and charts. Everything can then be imported to Microsoft PowerPoint® for on-site or remote presentations to current and prospective clients.

The SCB tools workbench also includes POWER 1 modules that help commercial officers automate their marketing, loan origination, and customer review administration tasks.

Standardization delivered

A different problem sent Bank of Boston Corp. to BancWare Inc., a Microsoft Solution Provider based in Braintree, Mass. The $41 billion-asset bank holding company wanted to standardize the way its 60 unit managers prepared budgets and forecasts so that everyone used the same models and tools, met the same planning requirements, and delivered data that was consistent and easy to consolidate.

Bank of Boston chose BancWare Convergence — an object-oriented integrated financial management system that uses the Microsoft Windows™ operating system and the Microsoft Excel spreadsheet for data import and analysis — as its software solution.

With the new system, figures are consistently presented and calculated, and consistency has improved the credibility of consolidated numbers, says Al Reese, director of management reporting at Bank of Boston.

The BancWare system helps managers look at profitability dynamics differently, identify profit opportunities, and confront problems before they become crises.

For more information, call John Humphrey, BancA, at (214) 761-8136 or BancWare at (617) 848-5800.

hen a few engineers at Microsoft set out to write Windows NT,™ they sat down with many cups of coffee, and computers built around the MIPS® R4400™ RISC microprocessor.

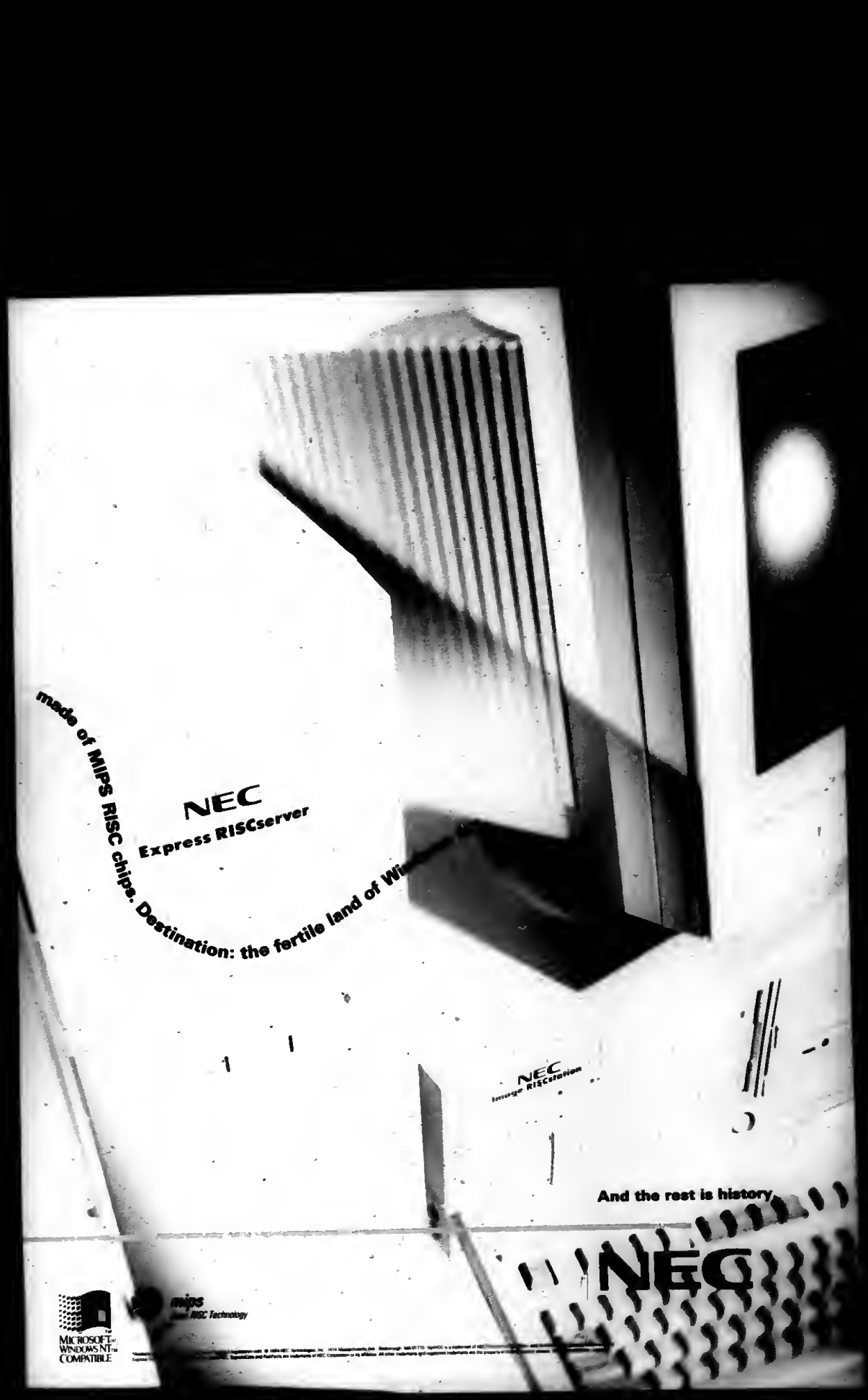
(No wonder: the NEC V_R4400™ MIPS processor is at the heart of some of the most powerful computers in the world.)

During the next few years, they worked long and hard, missing quite a few dinners with their families and untold televised sporting events.

Today, Windows NT makes it possible for companies to run their enterprise software on a whole new class of dependable, affordable machines. Like the NEC Express RISCserver,™ direct descendant of the machines used to write NT itself. And it gives software developers, designers and engineers access to remarkable new tools like the NEC Image™ RISCstation.™

In short, a few engineers sat down. And the entire computing world leaped.

A river of coffee. A raft


made of MIPS RISC chips. Destination: the fertile land of Wi
NEC
Express RISCserver
NEC
Image RISCstation
And the rest is history.
NEC
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MICROSOFT
WINDOWS NT
COMPATIBLE

HEALTH CARE

Health Care Reform Gets a Shot in the Arm

Using a pen computing device tied to a computerized medical records system, clinicians can record physical exam results that are updated in real time

Health care reform is bringing major challenges to health care providers across the country, and many technology-related issues continue to surface as the debate rolls on

For example, the trend toward consolidation results in the need to integrate dissimilar computing systems. There is also a movement toward increased outpatient care, which necessitates systems that can scale from standalone, easy-to-use, hand-held units for clinicians to community health care information systems that serve as clinical repositories for communities or regions.

As costs climb and medical knowledge continues to explode, health care organizations are finding it increasingly difficult to influence, monitor or predict expenditures. Changing business conditions and increased competition make it critical that health care systems be built as quickly as possible to enable efficient processes. Many health care organizations are reengineering their systems and eliminating obsolete functions as they search for ways to streamline other functions

Win^2 Technologies, Inc. in San Bernardino, Calif., offers health care organizations an information technology solution that addresses many of these pressing issues.

WinCare™ offers a comprehensive practice management and computerized medical record system. Doctors in both small rural practices and large regional networks can use the scalable system to get information about clinical protocols they should follow to deliver consistent health care. During a patient visit, the health care provider can download information as well as input patient financial and clinical information.

Tools like WinCare™ give doctors quick access to patients' medical records.

Organizations accomplish this by connecting a complex web of legacy health care systems with new information technology WinCare gets the job done through extensive use of the Microsoft Solutions Platform of products On the back end, it uses the Windows NT™ operating system, Windows NT™ Advanced Server, and Microsoft SQL Server™. On the front end, it uses Microsoft Windows™ for Workgroups operating system with integrated networking, the Microsoft Access® database management system and Microsoft Mail.

Here's how it works: With an easy-to-use pen computing device, a clinician uses WinCare to download a patient's medical record from a database residing on a server. The clinician records observations and physical examination results with the click of the pen and the records are updated in real time The clinician can also sketch or videotape the patient, write prescriptions, and order lab tests or X-rays right from a notebook computer, navigating easily through options via the Windows™ interface.

During the same visit, the clinician can access and consult protocols, textbooks, or the latest medical literature, or send a patient record to a colleague via a Microsoft Mail message. In addition, the clinician or an assistant can use the WinCare billing, appointment scheduling, reporting, medical record and pharmacy modules to streamline administrative duties. Because WinCare integrates graphics, sound and video, health care providers can use the system to educate patients or consult with other physicians in remote sites. They can request contextually sensitive data when they need it, wherever they need it, the way they want to see it. Health care is an information-based service industry, so the benefits from introducing new information technology are many for both providers and consumers. They include the following:

- Lowering administrative and management overhead
- Quick access to a patient's insurance coverages and restrictions
- Avoiding unnecessary and duplicate test ordering
- Easy, accurate monitoring of drug usage
- Better outcomes analysis, and
- Improved patient education.

Information technology is a boon to health care organizations that are reexamining and reengineering their processes during this era of health care reform. And client-server systems are the key to bridging the old with the new.

For more information, call Win^2 Technologies at (909) 383-3500.

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YOUR DESKTOP.
ONE RUNS
YOUR NETWORK.
AND THEY
BOTH RUN DEEP
AND WIDE.

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There's a vast expanse of challenges out there. And you have to solve them from one workstation.

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And without the right operating system running underneath those advanced applications, you're dead in the water.

That's the reason Microsoft® Windows NT™ Workstation operating system is so significant. This 32-bit system gives you high-end workstation power along with the productivity, ease and compatibility of the Windows™ environment.

All for the cost of a PC.

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Our preemptive multitasking lets you simultaneously run two, three, or as many applications as you want. You can seamlessly integrate your favorite productivity programs with your more complex business-critical applications to create complete business solutions. All on one desktop.

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The simplicity of Windows.

Now you've got UNIX® power and flexibility without the arcane commands. Because Windows NT Workstation does it all in the Windows environment. It's easy to use and quick to learn. (And a big savings on training costs.)

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There's a lot of solutions available for Windows NT Workstation. New versions of Microsoft Visual C++™ development system and Microsoft Office for Windows NT, with 32-bit Microsoft Excel and Word, are around the corner.

So it's time to get started. Time for you to migrate to Windows NT Workstation. Call (800) 434-3982, Dept. P6V, for your free in-depth evaluation guide. Get Windows NT Workstation now and we'll send you our next upgrade.* For free.

With all that power at your command, you might get a chance to come up for air once in a while.

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WINDOWS NT SERVER.
EVERYONE ALL THE

Your company is a kind of ecosystem. An intricate network of diverse types that all feed on information. Constantly.

And, just as sophisticated systems in the ocean are built on a foundation of coral, your business needs a dependable platform, a solid infrastructure on which to sustain itself and cultivate growth.

The Microsoft® Windows NT™ Server is that foundation. The one complete network operating system that gives you the solution capabilities of a minicomputer with the speed and price of a file server. Nothing else can do all that.

The widest range of possibilities.

No other network operating system runs as many business programs or runs them as well. From accounting and payroll systems to customer tracking.

It supports and integrates a whole spectrum of server applications, networks and hardware. So you can find the answers to make better decisions. Faster. Through the familiar Windows® environment.

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It's all in the box. A new standard of simplicity. Ready to set up and manage. Even with NetWare®, UNIX® and SNA systems. Because Windows NT Server integrates with all your existing networks.

Naturally, integration means you've got central management from a single computer. Load balancing. Troubleshooting. The works. All at your fingertips. Thanks to the best monitoring and management tools around.

It can even accommodate

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Y NEED TO THRIVE.

built on this core, lets you leverage your current investments as you move to new distributed systems.

That's why thousands of companies have already used it to build rock-solid solutions for their organizations. Fact is, Windows NT Server has the highest customer satisfaction rating of any Microsoft product in history.

So call us at (800) 434-3982, Dept. P6V, and get your free evaluation kit. Or get Windows NT Server now and the next upgrade* is yours for free.

Once you've got this foundation, your business might just go right to the top of the food chain.

Hewlett-Packard® OpenView,® IBM® NetView® 6000, and the Sun® Net Manager.® So you can manage the largest mixed networks there are. *You pick the hardware.*

Choose the chips that deliver the best price/performance for you. Pentium,™ MIPS,® DEC® Alpha AXP.™ Single or multiprocessor.

And this platform is the essential long-term answer, too.

The microkernel achitecture at the core of Windows NT Server means the solutions you develop today will last into the next century. Our object technology,

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The ability to access data remotely without having to know where data resides cuts sales and marketing labor costs and improves responsiveness.

SALES AUTOMATION

Enterprise Sales Automation Speeds Data Access, Cuts Costs

In the 1990s, firms are racing to automate their sales operations to improve efficiency in an environment where customers expect better information, faster.

To set up an enterprise sales automation system that will serve them into the future, these firms must address process reengineering issues and incorporate sales, marketing and customer service into the solution.

The French pharmaceutical and chemical company Rhone Poulenc Rorer (RPR), maker of Maalox and other household name pharmaceuticals, faced a major data access problem. Its sales and marketing staff had poor or little access to corporate and third-party data that was scattered throughout the company. For example, marketing staff who requested data on dollar volume vs. market share for their monthly reports might wait from two days to two months for a response.

RPR turned to Adaptive Strategies, Inc., a Microsoft® Solution Provider based in Cherry Hill, N.J., for a technology solution that would give its corporate users and 1,500 sales representatives easy access to these different information sources. Adaptive's client-server sales force automation solution — a trio of products called SFA+, Protége, and MobileSync — is currently used in financial, manufacturing and pharmaceutical organizations. It employs the Windows NT™ Advanced Server operating system and Microsoft SQL Server™ for Windows NT on the back end and Microsoft Windows™ for Workgroups operating system with integrated networking and Microsoft Office on the front. The solution's architecture incorporates OLE (Object Linking and Embedding) automation, Microsoft Visual Basic® for Applications, ODBC (Open Database Connectivity) and message-enabled technology.

Using this solution, RPR users across the enterprise can tap into the data library from various points of view. For example, Microsoft Excel builds the query for a regional sales manager who wants to look at quarterly revenue per sales representative by territory. The data is displayed in a Microsoft Excel pivot table, and the manager can drill down into the data library for more detail and history. The next step: Create a chart, drag and drop it into a Microsoft Word document, and send the report as an attachment to a Microsoft Mail message for distribution to the regional sales staff. Sales and marketing personnel can now access data without having to know where data resides.

"We estimate that we save $1 million annually with this system," says Howard Mark, director of sales and marketing systems at RPR. "Our labor costs have gone down, and we have significantly reduced our time to market."

For more information, call Bob Land, Adaptive Strategies, at (609) 482-7886.

Windows NT and Windows NT Advanced Server

Together, the Microsoft® Windows NT™ and Microsoft Windows NT™ Advanced Server operating systems make up the most powerful platform for client-server computing. Both products are designed to be ready for the most demanding computing requirements of the 1990s and beyond.

Microsoft Windows NT for the desktop is designed to provide users with the power of a dedicated workstation while retaining the ease of use, productivity and compatibility of Windows™-based desktop systems. Microsoft Windows NT Advanced Server for the server is a high-performance server designed to support business-critical applications while also providing complete file- and print-sharing capabilities.

Microsoft Windows NT 3.1 features include:
32-bit processing, scalability, pre-emptive multitasking, support for thousands of Windows- and MS-DOS®-based applications, symmetric multiprocessing, ability to run on Intel®, MIPS® or Digital Alpha AXP™ RISC CPUs, support for OS/2® character-based applications, POSIX application compliance, built-in networking and workgroup capabilities. In addition, Windows NT 3.1 is designed for C-2 level security.

Windows NT Advanced Server 3.1 features include all of the above, plus:
Ability to run business-critical server applications such as database, messaging, and systems management services, advanced fault tolerance, centralized management, multiserver administration facilities, single network logon, remote access service with support for direct, X.25 and ISDN links, Macintosh® services for file and printer sharing, full centralized security control and access to applications running on Windows NT Advanced Server without additional software for Novell® clients.

INSURANCE/LEGAL

IT Helps Level Playing Field for Small Business

Small businesses face many of the same challenges as their larger corporate counterparts, but without the same revenue-generating possibilities. As a result, anything that increases productivity or reduces costs without sacrificing product or service quality is a boon.

That's why small businesses in nearly every field are turning to information technology to stay competitive. They've seen that properly applied automation increases productivity and efficiency and reduces costs to clients.

Young & Perry Insurance in Bridgewater, N.J., needed to increase the productivity of its independent agents so that the office could find and retain commercial business without growing beyond its current size of 24 employees. In addition, they hoped to control the paper chase that was burying agents and support staff alike.

Independent agents get boost

The firm turned to Agency Management Services, Inc. (AMS) of Norwell, Mass., which serves more than half of the country's 43,000 independent insurance agencies. AMS recommended that Young & Perry enhance its basic functions — selling, marketing, servicing and managing — via information technology. AMS's Pathfinder Plus for the Windows™ operating system integrates these four processes, allowing an agency to deploy new technology intelligently and focus its energy and investment in highly leverageable areas. Each core-function module is integrated with Microsoft® Office applications, so that underwriting, rating, and other data can be imported easily into reports, analyses, and memos.

When Pathfinder Plus for Windows was installed in his office, partner Bill Young says he saw a very positive response from his agents. In addition to using Microsoft Word extensively on their desktops for correspondence and newsletters, agents on the road use laptops and the Microsoft PowerPoint® presentation graphics software to create professional-looking presentations and documents for clients and prospects.

Young & Perry agents use the system to coordinate direct mail and telemarketing efforts, to create graphical maps for customer prospecting, and to rate personal and commercial lines. They can incorporate risk surveys into submissions and proposals; and they can easily access policy histories and client notes. Scheduling, accounting and reporting tools are also integrated into the core processes with the new system.

The information technology solution that Young & Perry implemented allowed them to reduce labor costs by more than $100,000 annually. It also allowed them to convert some support positions into sales positions, thereby increasing revenue opportunities.

Similar productivity increases and information technology "transformations" can be seen in the legal profession, where nearly 75 percent of law firms are composed of five or fewer people.

Attorneys from small firms often find themselves in court facing lawyers from large firms that can afford to maintain huge law libraries and a stable of law associates and paralegals. How can they overcome this David-and-Goliath disadvantage? By using their PCs and on-line research such as the LEXIS®/NEXIS® services to gain fast access to the same source materials as the large firms.

Access to major league tools

The LEXIS service, introduced in the early 1970s, is provided by Mead Data Central, based in Dayton, Ohio. LEXIS is a computer-assisted legal research service that contains massive archives, federal and state case law and statutes, regulations, 45 specialized legal libraries, and an extensive collection of public records. NEXIS is a news and business information service that includes a news library with 2,300 full-text sources and 2,000 sources of abstracts segmented by market and industry.

Working on their legal briefs with Microsoft Office applications such as Microsoft Word, users can directly access the LEXIS service, check legal citations, look at the full text of cases cited, and locate other memoranda in the firm's briefs bank that may pertain to their case. Without leaving Word,

Specialized tools for vertical markets such as insurance and law help small staffs compete with their larger counterparts

they can download on-line information into their legal briefs and cut and paste materials from Microsoft Excel or other Word documents. They can also send briefs via Microsoft Mail to other attorneys on the case for review and annotation. Users can then forward the final revised document to their clients' in-house counsel via LEXIS® Counsel Connect, a legal communications and information service.

Services and products such as these go a long way toward leveling the playing field with large competitors.

For more insurance information, call Bill Coates, AMS, at (617) 982-9400. For more information on legal services, call Mead Data Central at (800) 253-5624.

MANUFACTURING

Process Reengineering Maximizes Efficiency

Technical desktop workstations capable of powering business and engineering applications from the same machine let engineers work more effectively while decreasing costs.

With the need to decrease time to market, increase customer satisfaction and lower operating costs, manufacturing firms are taking a hard look at all of their enterprise processes and reengineering them for maximum efficiency. They are finding that efficiency is derived from utilizing and sharing information effectively. Gone are the days when the shop floor and business office functioned as separate entities. Today, client-server computing lets firms design their processes for maximum information sharing and efficiency throughout the enterprise. As a result, factories are moving off of costly legacy systems and on to more flexible client-server systems.

For instance, process control data that has traditionally been downloaded to minicomputer or mainframe machines for analysis can now be fed into a PC running the Microsoft® Windows™ or Microsoft Windows NT™ operating system on the shop floor. Analysis takes place on the PC, and the information is made available immediately.

With this speedy feedback, operators can continuously evaluate line performance, quickly respond to problems as they arise, and react to new customer demands. This enables manufacturers to move from batch manufacturing to "make to order" manufacturing.

Two desktops in one

This type of increased efficiency can be seen on the technical desktop as well. Currently, many engineers have two systems on their desks: a UNIX®-based workstation running CAD/CAM applications and a PC to handle business tasks such as word processing, engineering analysis, electronic mail and presentation graphics. Today, with Microsoft Windows NT and the new hardware designed around the MIPS®, Alpha AXP™ and new Intel® chip architectures, an engineer needs only one machine on her desk to run both engineering and business applications. This lets an engineer work more efficiently while decreasing operating costs.

Several major corporations have transitioned to this type of client-server system for CAD/CAM, plant data and utilities management, integrating a Microsoft Windows NT-based Intel Pentium™ TD-2 personal workstation from Intergraph Corp., based in Huntsville, Ala., with Microsoft Office, technical applications and high-performance graphics subsystems. With this single system an engineer can download files from a public server, use them to create a design or map with Intergraph's drafting applications, embed that in a document or spreadsheet, and then send those files out to various members of an organization via electronic mail.

Intergraph markets nearly 900 applications for architects, engineers, construction managers and publishers. More than 100 of those are available on Microsoft Windows NT, with 200 more expected by the end of 1994.

"Microsoft Windows NT offers a robust operating system without complexity, and most of our 3,000 developers are focused on it now," says Tom Steele, executive vice president of software systems at Intergraph. "Within about 600 of our applications, we have 135 million lines of UNIX code, which we have worked on for more than 10 years. The fact that in about two years we can migrate that whole set of code to Microsoft Windows NT gives you an idea of how developer-friendly Microsoft Windows NT is. In fact, much of the code that we wrote for UNIX is built in to Microsoft development tools and Microsoft Windows NT."

The buttom-line impact of client-server systems in manufacturing is: lower operating aod service costs, increased engineer and operator efficiency, and shorter time to market. The bottom line impact of developing on the Microsoft Windows NT platform: robust solutions, faster.

For more information, call Intergraph at (800) 345-4856.

RETAIL

Harnessing Retail Data Yields Competitive Gains

In this era of diminishing margins and strong competition among established chains, retail organizations are racing to reduce operating costs, shorten purchasing and stocking times, and get real-time information to decision makers as quickly as possible. However, typical retail operations still have a half dozen different data sources as well as separate operating environments that run hard-to-use applications. Rarely do they have tools to manage or develop for that maze of hardware and software.

In response, many large retail operations are migrating to an open, standards-based architecture that utilizes and integrates existing systems with a coherent, easy-to-use front end. With these solutions, users can access merchandising, point of sale, inventory, and financial data, even if the data is located in disparate areas. They do this via Microsoft® Windows™-based applications that are easy to use for less skilled or unskilled workers.

Post Software International (PSI), a Microsoft Solution Provider based in Wake Forest, N.C., and the world's largest independent software vendor in the retail industry, is working with several major discount and department store retailers to install PowerSTORE, its client-server in-store-based solution.

PowerSTORE provides an application-development framework that is based on Microsoft products including the Microsoft Windows™ for Workgroups operating system with integrated networking and Microsoft Visual Basic® programming system. The promise of the multimedia PowerSTORE system is that end users can keep their minds on business with easy-to-use, intuitive tools, and those tools can be used to develop retail-specific applications for stores.

For example, at point of sale, the salesperson at the cash register is assisted by PowerSTORE in several ways. After the system scans the item's bar code, it retrieves the price and description from the database, along with customer-specific purchase information that can be used to assist the salesperson in suggestive selling. Tax is added automatically, and the sale totaled. The salesperson is then presented with a graphical depiction of payment options, including pictures of credit cards.

An example of effective use of multimedia is the occasion where the cash register receipt tape runs out of paper. Here, the salesperson can immediately get a short video training, shown on the monitor used by the cash register, on installing more paper. The same monitor can display current print or TV ads, as well as a "merchandise locator" that shows an image of an item and data about which stores have it in stock. All these features increase the salesperson's opportunities to provide better service and improve sales.

In-store-based systems that retrieve customer-specific purchase information at point-of-sale assist salespeople in suggestive selling.

The multimedia capability of Post Software International's PowerSTORE includes on-line help sequences for procedures such as changing the cash register tape.

Managers can use PowerSTORE to monitor cash register activity and coordinate those numbers with inventory control, commission reporting and segment marketing. They can analyze "critical success factors" — such as inventory of primary items that draw customers in, or how well high-margin items are moving — or look at the store floor layout, then drill down into any department and see what stock is on the shelves.

If sales are down in a particular store, a manager can get real-time data on which division and which segment of that division is responsible. Once that's identified, a manager can use a "remedy" checklist to confirm what has been or can be done to solve the problem.

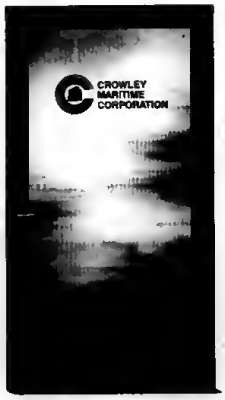
Managers can also monitor performance of individual salespeople and departments over a week, month or quarter, and call up employee profiles that contain previous performance reviews, job productivity and customer service ratings.

The competitive advantage in retail comes from managing inventory, serving customers and accounting for sales. The most successful chains are using information technology systems such as PowerSTORE to help them achieve those ends.

For more information, call Post Software International at (919) 556-6721.

Smice Lante Corporation created a sales toolbox using Microsoft Office and Visual Basic, sales have increased 128%.

Wonderware Corp. created a Microsoft Windows-based control system at one-fourth the cost of a typical configuration.



Gateway Group, Inc. helped integrate Microsoft SQL Server into an image-based billing system, dramatically improving productivity.

Microsoft Office and WinResources Computing, Inc. made changing menus faster and easier for this popular restaurant chain.

MDL Information Systems, Inc. and Microsoft Office provided productivity tools allowing research scientists to better analyze data.

This securities firm looked to Micro Modeling Associates and Microsoft Office to expedite the delivery of investment research to clients.

MTX International, Inc. and Stanford Business Systems joined this supermarket's accounting and point of sale system with Microsoft Access.

Plannum Software and Paradigm Technologies implemented a Windows NT®-based client/server architecture, cutting costs 65%.

This law firm now spends less time on paperwork thanks to Quickstart Technologies' use of Microsoft Office and the Windows NT family.

OUR EXPERTS MAKE IT THEIR BUSINESS TO KNOW YOURS.

These days, businesses are in a state of constant technological transition. You're upsizing, downsizing, or just trying to get your eclectic collection of hardware and software to work together.

MICROSOFT WINDOWS

Enter Microsoft Solution Providers. Independent companies who, working with Microsoft products and support, are dedicated to solving business problems.

How? Simply, every Microsoft Solution Provider (and there are thousands) have people with real-world experience in integration, consulting, development, technical training, and support. Talented teams who understand that a health care provider has different business issues than a bank.

Many have Microsoft Certified Professionals on staff. People who have proven their technical expertise by passing rigorous certification exams on Microsoft products.

Microsoft CERTIFIED PROFESSIONAL

Microsoft Solution Providers also know that companies are working in mixed computing environments. So they're well versed in solving multiplatform problems. For a brochure on the solutions represented here, or for a referral to a Microsoft Solution Provider, call (800) SOL-PROV, Dept. KKT.

Microsoft SOLUTION PROVIDER

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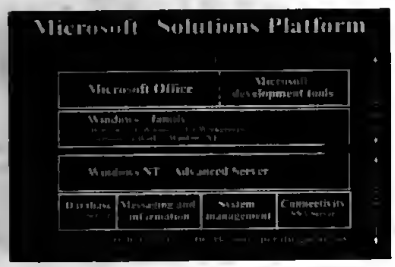
Laying the Foundation



Microsoft has a complete offering made up of best-of-breed components. Collectively, it's referred to as the Microsoft® Solutions Platform — a combination of products, technologies and services that form the foundation for building enterprisewide, line-of-business solutions around cost-effective microprocessor hardware.

On the desktop, the Microsoft Solutions Platform includes Microsoft Office, a suite of applications that can be customized and programmed using an embedded programming system (Visual Basic® for Applications, Access Basic and Word Basic) derived from the Basic programming language. Other key applications include Microsoft Project, a project management tool, and the Microsoft FoxPro® database management system.

General-purpose development tools are available for the professional developer, including the Visual Basic programming system, Visual C++™ development system, Microsoft Access database management system, FoxPro, FORTRAN PowerStation, COBOL and MASM. These client-side tools are all based on the Microsoft Windows™ family: Microsoft Windows 3.x, Microsoft Windows™ for Workgroups and Microsoft Windows NT™ operating systems.

The server uses Microsoft Windows NT™ Advanced Server and a set of server-based applications, including database management (Microsoft SQL Server™), host connectivity (SNA Server), messaging and information exchange, and system management.

OLE (Object Linking and Embedding) and WOSA (Windows Open Services Architecture) provide the open, extensible mechanisms for adding software components that comply with these standards.

Broadly defined, the Microsoft Solutions Platform also includes third-party hardware, networks and operating systems running on a variety of microprocessor architectures. And finally, third-party applications, tools and services, such as those offered by Microsoft Solution Providers, turn the platform into true solutions for business computing.

DOCUMENT MANAGEMENT

Document Management Key to Mission-Critical Communication

Today, corporations, government agencies, and educational institutions around the world understand that most vital business communication occurs via documents — everything from hard-copy external reports to in-house electronic mail messages. Moreover, as documents have become more sophisticated, enterprises have realized that managing documents as a commodity saves time and money.

Effective document management systems enable both military and commercial sites to control access to files, track document versions, and speed the document routing and approval process.

An effective document management system must allow users to access, save and archive documents in a way that makes them quickly accessible by authorized users.

For the Los Angeles Air Force Base (LAAFB) which builds and buys early warning-satellite systems, preparing and managing documents such as requests for proposals (RFPs) had become a protracted and fragmented process. As many as 40 writers composed different parts of the RFPs and kept them on their own hard drives, which made tracking, reviewing, and compiling documents slow and complicated. An RFP for one contract, for example, took six months to develop.

The base generates thousands of documents every year, including RFPs, contracts, correspondence, and communication with Air Force officials in Washington, D.C.

To streamline document management, LAAFB staff consulted with PC DOCS, Inc., a Microsoft® Solution Provider based in Tallahassee, Fla. The base implemented the PC DOCS OPEN object-oriented client-server system, which is integrated with Microsoft Office and Microsoft Project on the client and Microsoft SQL Server™ for Windows NT.

With PC DOCS OPEN, the many LAAFB staff members who compose, edit, review, consolidate and publish the various sections of an RFP can, according to their roles and information needs, find and work with the documents they need at any given time. A user working in Microsoft Word can access PC DOCS OPEN and conduct a search for a particular version of a document. That search employs Microsoft SQL Server™ for Windows NT™, which retrieves the requested document from a storage database and delivers it to the user in Microsoft Word.

RFP developers can now control access to files, track versions of documents, and organize data. They log documents in and out more quickly, get documents routed and approved faster, and collaborate better. They can trace a document's history, research archives and reuse text, all from their desktop or a remote location.

LAAFB users also leverage text from various documents to create briefings in Microsoft PowerPoint, to send messages in Microsoft Mail, and to annotate Microsoft Excel spreadsheets.

"We're more productive in that we spend less time looking for information and more time working with it," says 1st Lt. Mike Alford at the Space and Missile Systems Center at LAAFB.

For more information, call Marcia Artale, PC DOCS, at (800) 933-3627.

ACCOUNTING

Accommodating Change in Accounting's New World

Finance departments today are in flux. Profit and loss responsibilities are being decentralized. Planning, budgeting and decision making all happen faster. Financial data is used strategically throughout the enterprise, and accounting can no longer serve as a data "silo." Many organizations are reengineering their businesses to focus across departments on processes such as order management, cost analysis, and customer relations.

As corporations move to modernize their financial systems to accommodate these changes, they find that their legacy computing systems often are not flexible enough to adapt. Increasingly, the interrelated pressures of organizational change, demand for real-time information, and rapid technology improvements are coming to bear on old mainframe-based systems.

One corporation that unlocked data for enterprisewide distribution is Toronto-based George Weston Ltd. As Canada's fifth largest company with annual revenues of $11.9 billion (Canadian), Weston operates a family of diverse firms in Canada and the United States.

Weston wanted to give its corporate financial decision makers greater access to strategic information to reduce the time and cost of analyzing that data. The corporate office adopted a client-server solution from Platinum Software Corp., a Microsoft® Solution Provider based in Irvine, Calif.

SeQueL to Platinum, a client-server system for graphical management accounting, runs on the Microsoft Windows™ for Workgroups operating system and allows Weston analysts to download data to their desktops from various enterprise and divisional sources. The company's former accounting package, developed in-house, had limited capabilities; it couldn't be used for budgeting or accounts receivable, and analysis tools weren't available inside the application so reports had to be custom-programmed.

Using SeQueL to Platinum, more people can contribute. For example, department managers can complete financial queries that in the past could be done only by the accounting group. Departmental budget analysis and activity-based reporting has also begun.

Users query the Microsoft SQL Server™ relational database for information and download it into Microsoft Excel. From Excel, they can perform sophisticated analyses on it. Charts and data created in Microsoft Excel can then be imported and linked to Microsoft Word documents and shared quickly and inexpensively via Microsoft Mail. On the back end, Microsoft Windows NT™ Advanced Server is integrated with the company's legacy systems, and data is updated in real time.

Significant cost savings are being realized by firms that have given financial decision makers greater access to enterprise data.

Weston originally migrated its central accounting system to SeQueL to Platinum on an OS/2®-based network. However, in January 1994, the firm moved the system to Microsoft Windows NT and immediately recognized a 30 percent to 40 percent increase in system performance and improvement in fault tolerance, said Mark Lefneski, Weston's manager of business systems.

Weston anticipates significant cost savings by aggregating the benefits and insurance accounting for all of its companies using the new system, Lefneski says. The company is reengineering its human resource processes to take advantage of the system as well.

Using the Microsoft Solutions Platform of products, Weston met its goals of widening access to data for financial managers, shortening report generation time, and making way for more cost-effective ad hoc reporting. The firm is encouraging all its subsidiaries to migrate to the new client-server system.

A different situation faced the Carolina Panthers, a new franchise of the National Football League. In building a computing strategy from ground zero, the Panthers wanted a powerful, integrated system for handling all facets of their business.

By allowing financial analysts to download data to their desktops and do budgeting and analysis from within their applications, companies are simplifying ad hoc reporting and reducing report generation time.

Accommodating Change in Accounting's New World

(continued)

Like other NFL franchises, the Panthers started with a DEC® Alpha AXP™ system. They chose to power it with the Microsoft Windows NT™ operating system to handle the high volume of transactions they expect — upwards of 100,000 receivables and a customer database of 25,000. They developed a custom ticketing application and chose Great Plains Dynamics® from Great Plains Software, a Microsoft Solution Provider in Fargo, N.D., as their accounting package. The Panthers will be upgrading to Dynamics C/S+, the client-server version of the product scheduled for release in the summer of 1994.

Boosting analysis functions

The Panthers' office staff, using more than 30 PCs running Microsoft Windows for Workgroups, will be able to use the ticketing program, Dynamics C/S+ and Microsoft Office applications to perform ticketing, accounting and all business and analysis functions. Once they enter data into the system via the ticketing program, it is stored on and accessible via the server. It never needs to be rekeyed, and it will be available via Dynamics and Microsoft Office applications. Because the software is integrated, users can also perform sophisticated "what if?" analyses, such as projecting season ticket sales, estimating concession and souvenir revenue, and monitoring player contracts.

The applications are integrated via DDE (Dynamic Data Exchange) and OLE (Object Linking and Embedding) 2.0, so a Microsoft Excel chart in a Microsoft Word document can be changed from within Microsoft Word. The document and spreadsheet can be linked so when the data in the spreadsheet is changed, it is automatically updated in the document. Users formulate queries in Microsoft Excel, the ticketing software or Dynamics C/S+, and Microsoft SQL Server, on the back end of the system, retrieves the requested data for manipulation on the desktop.

Whether you're migrating from an old system or starting from scratch, client-server systems powered by Microsoft Windows NT and utilizing Microsoft Office applications in conjunction with other solutions provide a solid foundation for your business computing strategy.

For more information, call Platinum Software's Product Information Center at (800) 426-0469 or Great Plains Software at (800) 456-0025.

The Microsoft Solution Provider Program: What's In It for You?

Microsoft SOLUTION PROVIDER

Business users are leveraging new computer technology to operate smarter, leaner, and more productively, to offer better customer service, and to gain a competitive advantage. To meet customer needs and help users leverage technology, Microsoft has joined with third-party service providers to implement business computing solutions with support, consulting, training and market-leading Microsoft® products.

Microsoft is implementing this relationship through its Solution Provider Program, which includes thousands of independent organizations worldwide. Microsoft provides these organizations with information, technology, products and tools to help them successfully develop and market solutions based on Microsoft technology.

Customers receive the following benefits from the Solution Provider Program:

Industry Expertise. The Solution Provider, working with Microsoft, has the knowledge to fit computing technology to the specific needs of any business. Solution Providers assist organizations of all sizes and industries and often serve vertical markets.

Customized, wide-ranging service. Solution Providers offer the kind of expertise, support and training not always available or affordable within a single organization. Solution Providers offer a broad range of services from design consulting to installation and highly specialized custom development. These services can often be tailored for customer-specific needs, such as on-site training and support.

Worldwide Diversity. The Microsoft Solution Provider Program teams your organization with thousands of Solution Providers and their technology experts throughout the world. Solution Providers have certified professionals on staff who have proven their technology expertise with Microsoft products.

Multivendor Support. Many Solution Providers are experts in several vendors' products, so they can integrate and build solutions using the best available products, regardless of origin.

Many of the solutions described in the previous articles were created by Microsoft Solution Providers. For a referral, call (800) 765-7768. Mention the "Computerworld Supplement" and we'll send you a free Microsoft Solution Provider Directory.

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Reporter's Notebook

Computex is a computing grab bag where the Taiwanese show off their technical wares to scores of potential business partners from around the world. If nothing else, the foreigners are glad to find air conditioning in the sauna-like heat of Taipei, but at least some of the products displayed find their way to market in the U.S. and Europe. Pricing is almost never revealed by the Taiwanese, who typically dwell in the netherworld of supplier to U.S. and European companies that distribute systems in the retail market.

While American PC makers have gross margins that range from 17% to 25%, the Taiwanese typically live in the 10% range. But chip vendors such as **Intel** have been immune from the Taiwanese pricing pressure. This won't change any time soon, but on display in a Computex suite was a motherboard based on the new 1486 clone from Taiwan's **United Microelectronics Corp.** Price: $110 U.S. Distribution is not expected any time soon.

The Taiwanese refuse to give up on the pen-based market, billing the machines as the next personal digital assistants (PDA). Computex featured several pen-based handhelds such as **Dialogue Technology**'s Infoman, a 1.8-pound handheld with a proprietary operating system and an $1,800 price tag that should spell doom. **Interplanetary Information**, a company with the whole universe in its name though not the world at its fingertips, also showed a pen-based system that it claimed had audio capabilities (although the company couldn't display this when we came by). It also has a color version of the **Cyrix** 486SLC-based product, but for $3,100 ($2,700 monochrome) it looks unlikely to attract much interest in the U.S. Hong Kong's **Group Sense Ltd.** may have a shot in the consumer market with its $170 Instant Pad, designed to give organizer and notepad functions in a less than 1-pound package.

Acer, Inc. displayed its AcerPad, a 1½-pound PDA concept product based on an 8086-class processor, with a separate processor for character recognition, but it does not expect to bring the product to market in the near future. "We were going to introduce it, but Newton gave us a big scare, so we're back to the drawing board," said Ronald Chwang, president of **Acer America, Inc.** in part, Acer needs to figure out how to cut the $800 to $900 cost in half.

Intel hopes *its logo needs no translation outside the Computex trade show*

One notebook design trend that looks guaranteed: PowerBook-like trackball layouts on DOS notebooks. No less than 12 Taiwanese vendors showed keyboards with a large trackball laid out below, just like a first-generation PowerBook. Apple has moved on, of course, putting the finger mouse in its new products.

A host of subnotebooks were at Computex. The Acernote 300 weighs from 3½ to 4 pounds (depending on screen type), has a trackball, built-in infrared data link, two PCMCIA slots and a 486SX from **Intel**. It's not clear whether Acer will bring the product to the U.S., but it will be ready by the third quarter. **Mitac, Inc.**'s 4023, which weighs 4.4 to 4.8 pounds, depending on the screen, will be out late in the third quarter.

But **Chaplet Systems, Inc.** went one step further with its Ulufa 350, which it calls a super subnotebook. The 3.3 pound, 9.3- by 6.6-in. box supports up to an Intel 25/75-MHz 1486DX4 and can run either the standard **Duracell, Inc.** DR30 battery or double A batteries.

—*Michael Fitzgerald*

Terho Uimonen, an IDG news correspondent and Arthur Lee, Computerworld Taiwan editor in chief, contributed to this story.

Newer Technology has introduced memory modules for Apple Computer, Inc.'s PowerBook Duo 280 and 280C and PowerBook 520, 520C, 540 and 540C.

According to the Wichita, Kan., company, the PowerBook Duo modules offer upgradable memory options.

The PowerBook 520 and 540 modules come in 4M-, 8M-, 16M- and 32M-byte sizes. A total of 36M bytes of system memory are possible with the 32M-byte module.

Prices for the PowerBook Duo modules range from $276 to $1,778, and prices for the PowerBook 520 and 540 modules range from $258 to $1,797.

▶ *Newer Technology*
(316) 685-4904

Procom Technology has announced the S14303 (internal) and MD4303 (external) 3½-in., half-height, 4.3G-byte, Fast SCSI II hard drives; and the S19100 (internal) and MTD9100 (external) 9.1G-byte hard drives.

According to the Irvine, Calif., company, the S14303 and MD4303 drives offer 4.3G bytes of formatted capacity with an average access time of 8 msec.

The S19100 and MTD9100 drives read/write a single-volume file of up to 9.1G bytes on SCSI-equipped PCs, RISC-based systems and Sun Microsystems, Inc. Unix platforms.

Prices range from $6,149 to $8,999.

▶ *Procom Technology*
(714) 852-1000.

ATI Technologies, Inc. has announced Video Basic and Video-It, two video capture boards for Windows applications.

According to the Thornhill, Ontario, company, Video Basic was designed for true color full-motion and still-image capture at up to 30 frame/sec.

Video-It executes real-time video capture and compression in a single step, resulting in longer high-resolution video segments.

Features found in both products include easy installation and live video at any graphics resolution.

Video Basic costs $249, and Video-It costs $499.

▶ *ATI Technologies*
(905) 882-2600

SofTouch Systems, Inc. has announced GammaTech Rexx SuperSet/2, a Rexx library of advanced functions for OS/2.

According to the Oklahoma City company, there are more than 300 functions in seven Dynamic Link Libraries (DLL) to call from any Rexx program. The functions perform math calculations, initiate file and system operations, manipulate processes and semaphores, regulate macrospace, execute video I/O and issue network commands.

The extended functions are registered to the Rexx command processor supplied with OS/2.

GammaTech Rexx SuperSet/2 costs $79.

▶ *SofTouch Systems*
(405) 947-8080

SunDisk Corp. has announced the SunDisk SDP5-1 flash disk, a 1M-byte flash mass storage card.

According to the Santa Clara, Calif., company, the card was designed for portable data collection computers.

The SDP5-1 is compatible with the PCMCIA-ATA standard to provide interoperability across all handheld platforms and does not require a battery.

Prices range from $169 to $189.

▶ *SunDisk*
(408) 562-0500

Momentum Data Systems, Inc. has introduced the Eagle-56, a document storage processor (DSP) board for the Peripheral Component Interconnect bus.

According to the Costa Mesa, Calif., company, the Eagle-56 comes in two versions, 40 and 66 MHz, with a Motorola, Inc. DSP56002 fixed point DSP.

Features include 20 and 33 MIPS performance respectively; 16- and 24-bit parallel host interfaces and fully expandable zero wait state Static RAM.

The Eagle-56 contains an onboard user-programmable I/O device, a daughtercard expansion area and DSP I/O expansion capability for external I/O devices.

The Eagle-56 40-MHz version costs $2,695, and the 66-MHz version costs $3,695.

▶ *Momentum Data Systems*
(714) 557-6884

Numera Software Corp. has introduced Visual CADD, a Windows-based, two-dimensional design and drafting program.

According to the Seattle company, Visual CADD delivers many popular features of Generic Software's Generic CADD in a Windows environment, including a two-letter command set and user programmability.

Visual CADD utilizes Microsoft Corp.'s Object Linking and Embedding 2.0 technology, which lets users incorporate drawings into other programs to create presentations, proposals and bills of material that can be updated as the drawings change.

Features include a multiple document interface; customized, context-sensitive pop-up menus; and support for both TrueType and Generic CADD fonts.

Prices range from $99 to $495.

▶ *Numera Software*
(206) 622-2233

WinBook Computer Corp. has introduced the WinBook XP line of notebook computers based on Intel Corp.'s 75-MHz 1486DX4 processor.

According to the Colombus, Ohio, company, the notebooks feature a 9½- or 10.3-in. dual-scan color screen, 4M to 8M bytes of RAM, a removable 120M- to 520M-byte hard drive and a choice of either a trackpoint or 19mm trackball pointing device.

Options include L2 cache, internal audio, an internal modem, a four-slot docking station, a car adapter and a battery pack.

The 32-bit local bus video Rocketchip Accelerator boosts graphics performance, and a 10-cell NiMH battery supports longer battery life.

Prices range from $1,999 to $3,999.

▶ *WinBook Computer*
(614) 481-8041

DataLux Corp. has announced the Databrick PC, a transportable PC smaller than a notebook but with the power of a desktop computer.

According to the Winchester, Va., firm, the Databrick has no display, keyboard, battery or bus slots but was designed for use in confined spaces in offices, vehicles, industrial embedded systems and point-of-sale locations.

The Databrick is a 486-class PC with floppy and hard drives; single in-line memory module-mounted dynamic RAM up to 32M bytes; and a parallel, two serial, keyboard and local bus VGA ports.

The Databrick costs $800.

▶ *DataLux*
(703) 662-1500

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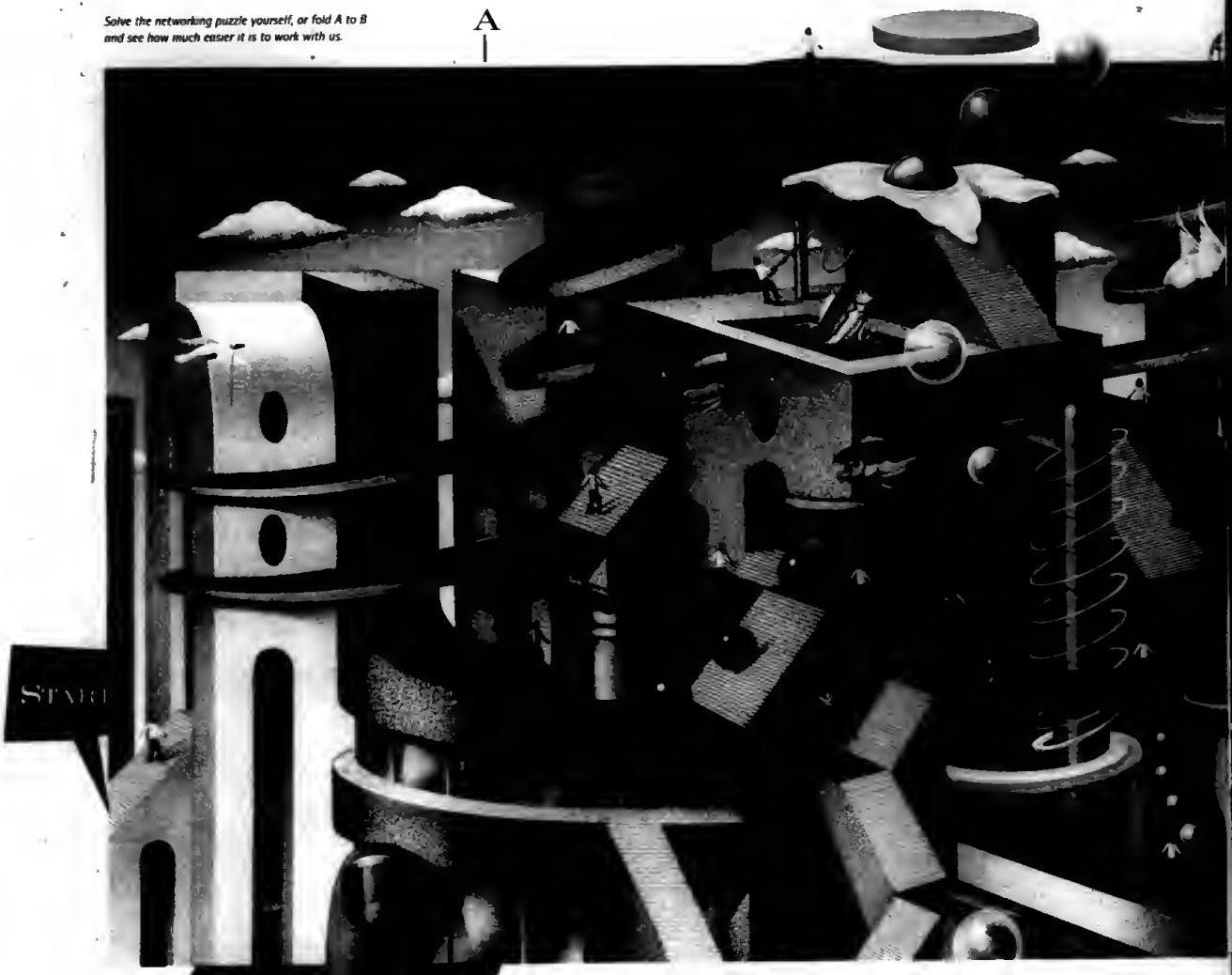

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Old backup alternative becomes new solution

By Mary Brandel

Users in search of high-speed, high-capacity, reliable tape backup solutions for their LAN environments are slowly starting to consider an often overlooked alternative, Digital Linear Tape (DLT).

This half-inch cartridge technology, developed by Digital Equipment Corp. in 1985, is used mainly by VAX/VMS users today, according to Greg Strakosh, an analyst at Reliability Ratings, Inc. in Needham, Mass.

Because DLT records and reads multiple channels simultaneously, its data transfer rates are higher than other tape technologies. It segments tape media into horizontal tracks and, to record, runs the tape past a stationary head. For high throughput, it also incorporates an adaptive cache buffering feature. It attains high reliability because it operates at a low constant tension, minimizing wear and tear on both tape and heads.

In the past 18 months, Digital boosted DLT's capacity from 150M bytes to 20G bytes, lowered the price and fired up its campaign to sell DLT outside its customer base.

Racer's edge

Speed is one of the primary advantages of DLT at the LAN level

4mm:	**Speed:** 183K to 510K byte/sec. **Cost:** $1,000-$2,500
8mm:	**Speed:** 250K to 500K byte/sec. **Cost:** $2,500-$5,000
DLT:	**Speed:** 800K to 1.5M byte/sec. **Cost:** $3,300-$7,900*
3490E:	**Speed:** 1.5 to 3M byte/sec. **Cost:** $10,000-$33,000 per drive

*End-user pricing

Source: Freeman Associates, Santa Barbara, Calif

Life-saving speed

The speed available on DLT "has saved my neck more than a few times," said John Williams, a consultant in Nashville.

Williams moved to DLT from 8mm tape when one of his clients upgraded from an 8G-byte to a 16G-byte server. With 8mm tape, a complete backup took 14 to 15 hours. "It stretched into the production day on both ends, which became impossible to deal with," Williams said.

Now, "we're seeing performance of 90M to 110M bytes per minute, which has reduced backup to a couple of hours per night," he said.

A second DLT strong card is reliability. "They've specified some ungodly reliability benchmarks, much better than any other tape drive," said Bob Abraham, an analyst at Freeman Associates in Santa Barbara, Calif.

This high reliability, analysts said, makes DLT a good choice for hierarchical storage management (HSM), where less-frequently used data is automatically migrated off magnetic disk to tape or optical disc technology.

"With HSM, the tapes are being used 24 hours a day, not 10% to 15% of the time, as with a tape backup application," said John Sharp, vice president of Avastor, the recently renamed group in the storage business unit at Digital that sells disk and tape drives. Therefore, the mean time between failure needs to be longer.

DLT's higher capacity, performance and reliability is, however, matched with a higher price.

"Compared with 8mm tape, DLT has a 15% higher price, and 8mm is significantly higher than 4mm," said Glenn McDermed, an analyst at Gartner Group, Inc. in Stamford, Conn.

Many interested parties

But the higher capacities have piqued the interest of a number of tape backup providers. Cheyenne Software, Inc., Conner Peripherals, Inc., Epoch Systems Corp., Legato Corp. and Palindrome Corp., among others, now provide drivers to DLT drives.

Cambex Corp. in Waltham, Mass., announced last week a five-cartridge DLT library for IBM RS/6000 environments.

And last month, Avastor signed up Dell Computer Corp. to sell DLT2000 20G-byte tape drives and a seven-cartridge mini library with its PowerEdge line of servers. Silicon Graphics, Inc. is said to have a similar offering for the fourth quarter. Digital said similar deals will be announced this summer, and it claims it will increase DLT tape volumes tenfold during the next fiscal year.

However, all is not rosy on the DLT front. Market predictions are not bullish for the long term, decreasing from the 50,000 units expected to ship this year to 43,000 in 1997, according to Freeman Associates.

Also, IBM is expected to announce its Narrow Track Product tape technology before the end of the year. "If that has application on the low end," Abraham said, "it would be a formidable competitor with DLT."

Sun: New servers multimedia-ready

Firm also pushes multiprocessor desktop

By Jean S. Bozman
SAN FRANCISCO

Sun Microsystems, Inc. has new entrants to the client/server market: high-end symmetrical multiprocessing enterprise servers and a multiprocessor system on the desktop for multimedia applications.

Sun Chief Executive Officer Scott McNealy pushed the concept of a multiprocessor power desktop at the recent SunWorld '94 here, saying that multiprocessor machines will be able to tackle power-hungry multimedia and videoconferencing applications without sacrificing performance.

Lacking applications

"Why not throw in two or four or even eight microprocessors on the desktop?" McNealy asked SunWorld attendees (see related column, page 6). "There's no reason not to, [except] that the software hasn't been written to take advantage of it."

Analysts agreed that progress toward multiprocessor software applications for the desktop is slow. Independent software vendors are not yet moving quickly to embrace the multiprocessor desktop as they await more demand from users, analysts said.

Industry analysts and users agreed that Sun's hardware plan for multiprocessor desktops was running ahead of the available base of applications software. Dominic Ricchetti, director of workstation research at Dataquest, Inc., said most relational database applications can easily be moved to multiprocessor desktops. But users and independent software vendors would have to adopt multiprocessor compilers to convert single-threaded applications for use on multiprocessor machines, he said.

Follow the leader

Most workstation vendors sell uniprocessor desktops, and executives at those companies said they do not require multiprocessor desktops to outpace Sun. But Nancy Battey, director of workstation research at International Data Corp. in Mountain View, Calif., said she expects Sun's rivals to follow suit on the multiprocessor desktops, including Hewlett-Packard Co.

"I think we'll see most of the workstation vendors jump in," she said.

Battey, who spoke at SunWorld, said "killer apps" are what will drive most workstation vendors to provide more horsepower on the desktop. She said electronic mail and video-on-demand are the "type of applications requiring

Sun, *page 76*

Speech recognition

Designing doctor-friendly systems a chore

By Mitch Betts

Pundits glibly predict that speech recognition will be the user interface of the future in health care facilities. But the people actually trying to implement and use the systems find it easier said than done.

Although speech-recognition systems are making some headway in hospitals, issues such as training, speed, confidentiality and other human factors can make implementation less than routine, users said.

In one case, doctors disliked a voice system so much that it was abandoned shortly after installation, according to a study last year by John W. Gosbee, executive director of the Center for Applied Medical Informatics at Michigan State University in Kalamazoo.

Saying no to change

Busy doctors at the unnamed hospital's emergency department said it took too much time to dictate a case and training was time-consuming, the study said. Furthermore, the physicians disliked having to change the way they dictated a case in order to fit the system's fill-in-the-blank format, Gosbee reported.

In essence, the system design failed to meet the needs of doctors and fit into their existing work patterns, the study said. Meanwhile, at Kaiser Permanente Medical Center in Santa Rosa, Calif., designers of a speech-recognition system are trying hard to avoid the same mistakes.

In the Kaiser project, which is fund-

Speech recognition, *page 76*

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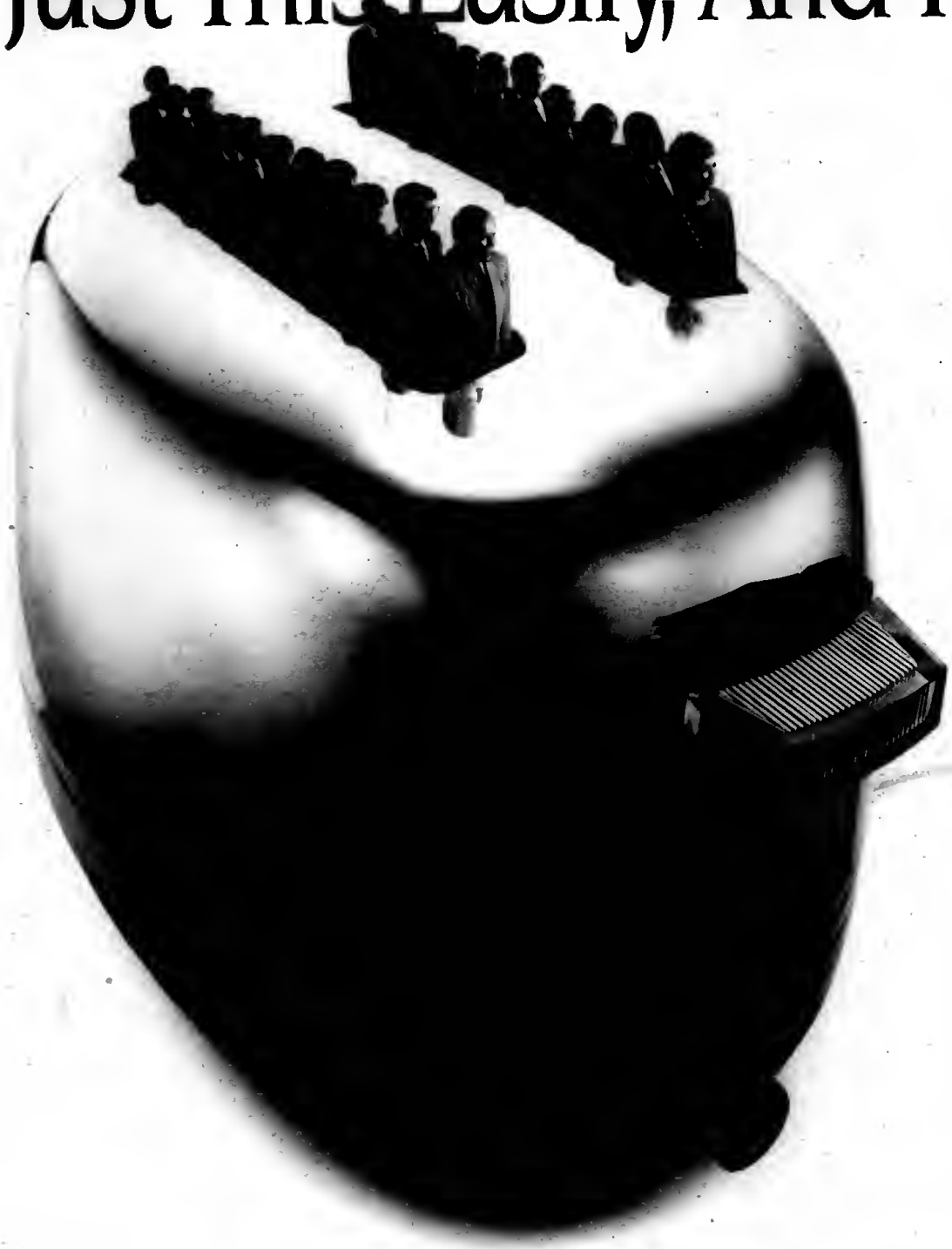

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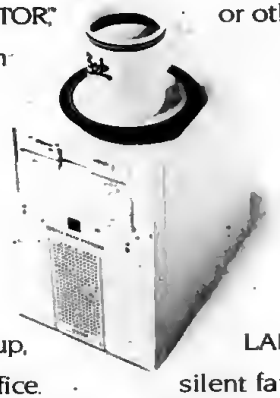

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Sybase report writer gets better with new developer

By Kim S. Nash

■ Users have started to see enhancements to the SQR Workbench report writer — including support for new databases — since Sybase, Inc. turned over development of the product to a smaller firm six months ago.

In January, Sybase signed a joint ownership agreement with Management Information Technology, Inc. that calls for the latter to develop, sell and support SQR Workbench. The product, a combination of a fourth-generation language and a PC-based tool for querying relational databases, was originally built by SQ Software, Inc., which Sybase bought out last year.

For Oracle users

Management Information Technology recently unveiled Watchworks 3.0, a database monitoring tool for Oracle Corp. platforms. The product, designed for Oracle 6 and Oracle 7, is due to ship in the third quarter.

Still a believer

"The product's been through a lot of hands, [but] we're still big believers in it," said Scott Splavec, a software engineer at Hill Arts & Entertainment, Inc., a company in Emeryville, Calif., that makes applications for theaters, box offices and other public venues.

Management Information Technology recently announced a version of SQR Workbench for Ingres databases from The ASK Group, Inc. New features include a point-and-click interface intended to allow end users to write custom reports without writing code.

SQR editions for several other databases, including Microsoft Corp.'s SQL Server, Digital Equipment Corp.'s Rdb and IBM's DB2, are due out in the next few months, the Long Beach, Calif.-based company said.

Appealing tool

SQR's debugging and maintenance tools appeal to Splavec. Currently, Hill Arts & Entertainment developers debug software by manually looking through print statements for each program, which is time-consuming and subject to human error, he said.

Overall, Splavec said he is "encouraged" by Management Information Technology's plans for SQR.

"Sybase didn't do a whole lot as far as SQR was concerned," he noted.

However, some technical support workers at Sybase who had worked on SQR will continue to work on its development, according to Matt Reagan, president of the National SQR Users Group in Elverson, Pa.

SQR Workbench for Ingres is priced at $1,200.

Speech recognition

CONTINUED FROM PAGE 73

ed by the National Institutes of Health, software developer KorTeam International, Inc. is building a system in the intensive care unit that allows nurses to use voice input to take some of the drudgery out of documenting patient care.

A select group of nurses is heavily involved in the user-focused system development, "so they can tell us what features they like and what they would rip out," said Janet Ho, vice president of engineering at KorTeam in Los Altos, Calif. Completion of the prototype is expected in early 1995.

The system design includes networked PCs, optical-disc storage and speech-recognition technology from Speech Systems, Inc. in Boulder, Colo. Nurses speak into a PC microphone to fill in an electronic medical chart, said Josue Lopez, a nurse and end-user consultant on the project.

Ho and Lopez said a key feature of the system is that the electronic medical form is identical to the paper ones that nurses now fill out manually, so there is no new format to learn.

But there are still some design issues to settle, Lopez acknowledged, such as whether nurses should wear wireless mikes so they can stay close to a patient's bed and not have to walk over to the in-room PC. In that case, engineers would need to ensure that the wireless microphones would not interfere with sensitive electronic medical devices [CW, June 20].

Another issue is how to keep talk about medical conditions confidential with a speech-recognition system, but Ho and Lopez said the nurses can use keyboard or mouse input for sensitive matters.

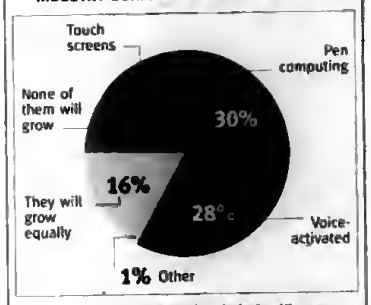
At Sturdy Memorial Hospital in Attleboro, Mass., the emergency department uses a speech-recognition system even though it has some of the problems mentioned in Gosbee's study, according to Robert Korn, associate chief of emergency services.

Not easy to learn

The system has a "steep learning curve," and it takes several months before doctors are proficient, but savings from the resulting electronic medical records outweigh those problems, Korn said. For one thing, the department saves on outside transcription costs, which are 12 cents per line.

Interface options

WHICH USER INTERFACE WILL EXPERIENCE THE MOST RAPID GROWTH IN THE HEALTH CARE INDUSTRY DURING THE NEXT TWO YEARS?



Base: 1,033 IS professionals in health care

Source: 1994 survey by Healthcare Information and Management Systems Society and Hewlett Packard Co.

Even bigger savings come from the fact that the more thorough documentation of patient care leads to a 20% reduction in the hospital's malpractice insurance premiums, Korn said. "The system has prompts that make it less likely the doctor will forget important information or miss a serious diagnosis."

"We've had to change the way we work to meet the needs of the voice-recognition system, but the structured approach to documentation decreases our risk and liability to lawsuits," Korn said.

By uttering a few words, such as "ankle sprain, left, lateral," the VoiceEM emergency medicine system — from Kurzweil Applied Intelligence, Inc. in Waltham, Mass. — generates boilerplate language to make a medical record. At Sturdy Memorial, it runs on three Intel Corp. 486-based PCs linked by a Novell, Inc. LAN.

"The advantage of voice input is that it allows our computer-phobic doctors to approach a computer in a less-threatening way. For sophisticated PC users, it offers no advantage over the keyboard and mouse," Korn said.

Sun

CONTINUED FROM PAGE 73

large [system] buses, more I/O and more capabilities in regard to CPU performance and functionality."

Several users attending SunWorld said they favored the idea of multiprocessors on the desktop, especially as an upgrade-in-place for multimedia or graphical applications. "We're deploying graphical applications on our Sun workstations, and I don't know if we can fulfill all of the user requirements without" multiprocessors, said Robert Banikas, an Arlington, Va., consultant who configures workstations at government agencies. That is because budget limitations would prevent some sites from buying new and more powerful workstations for new applications, he said.

Simple board swaps can convert uniprocessor workstations into multiprocessor machines, users noted. The difference in price between a $12,195 one-CPU SPARCstation 20 and a two-CPU version of the same machine is $2,000, Sun said.

Other than database applications, most software has to be rewritten or run through a multiprocessor compiler to run on multiprocessor machines. "You can do more things on the same box at the same time," said one programmer at a Southern university, who did not wish to be named. "We have the [microprocessor] compilers, but we haven't ported our applications."

Booming sales

Sales of multiprocessor-capable desktop machines are already booming at Sun. Of the 222,000 workstations Sun shipped last year, about 80,000 were SPARCstation 10 workstations, Battey said. Sun shipped about 2,000 SPARCstation 20s in 1993 and sold about 9,000 SPARCstation 10s as Unix servers, she said.

Making use of the idle

Desktop multiprocessor systems should ease the transition to a new generation of compute-intensive applications, such as multimedia and videoconferencing, Sun said, because they can push tasks to idle chips as users demand more processing power.

Both SPARCstation 10s and their successors, the SPARCstation 20s, can use up to four 32-bit SuperSPARC processors. Bob Pearson, director of advanced desktop systems at Sun, estimated that about 20% of all multiprocessor-capable SPARCstation 10 and SPARCstation 20 desktops are shipping with more than one processor on-board.

Other industry analysts said Sun was first in multiprocessor desktops simply because it needed to be: Sun's desktop performance with the 32-bit SuperSPARC chip at 50 and 60 MHz has lagged behind that of Digital Equipment Corp.'s 64-bit Alpha chip, HP's 125-MHz PA-RISC chip and IBM's Power2 chip, as measured by SPECint 92 benchmarks.

Listening to concerns

Responding to users' questions about workstation speed at SunWorld '94, McNealy said Sun had decided to adopt the SuperSPARC chip's unique RISC design at the cost of higher-speed clock rates on each chip. But users' concerns have registered with Sun executives: "We understand that, we're not happy with that, and we're going to fix that," McNealy said.

A more efficient pipeline design, as well as 80- and 100-MHz versions of SuperSPARC, are in the works and should be available in 1995, he said.

But Ricchotti said the 64-bit UltraSPARC chip should be out by 1995, too. "That will blow by a SuperSPARC design [running] at 100 MHz," he said.

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Word about PCs from Hewlett-Packard is getting around, and ratings are soaring. According to a recent CRN/Gallup survey, "Use of HP desktops in Fortune 1000 companies has doubled in the last year."[2]

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Integrated, multiprotocal Boot-ROM	X		
ISA Plug-n-Play Compliant	X	X	
Multilevel Security Features	X	X	X
Asset tracking	X	X	
PC tattooing	X	X	
Optional Desktop Management Software	X		
Bi-directional parallel port	X	X	X
Desktop Management Interface (DMI)[3]	X		

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- *ISA Plug-n-Play compliant*
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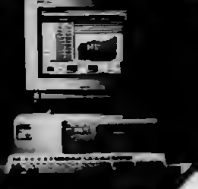

NEW!

HP Vectra M2

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- *Optional integrated 10Base-T networking*
- *Systems Diagnostics Utility*
- *EPA Energy Star certified*
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- *Integrated Desktop Management Interface (DMI)[3]*
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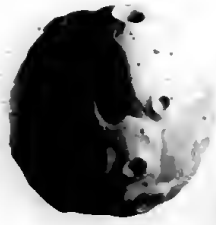

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Learning to run with NetWare

'NetWare Ready' products lessen user hassles

By Elissbeth Horwitt

Novell, Inc. recently announced its "NetWare Ready" program, which certifies that an OEM product is preconfigured or bundled with fully compliant and interoperable versions of Novell's client, server or communications software.

The program supports Novell's NetWare server, Universal Client, Personal NetWare, UnixWare, Novell DOS, Multiprotocol Routing and NetWare for SAA gateway software. It is an extension of the existing "Yes it Runs with NetWare" offering, which certifies that a given application, hub, adapter or gateway runs on or in concert with NetWare.

A growing number of vendors are now offering server or client hardware platforms, as well as hubs and assorted communications software, preconfigured with NetWare software.

Such preconfigured products could potentially "save me the hassle and headaches of doing it myself, which can translate to a lot of time if you have a big network," said Steve Truesdell, information systems director at Granutec, Inc. in Largo, Fla. When implementing new server or client software or a new hardware platform, "half the time I have to get on the phone with the two vendors and work out technical support," he said.

Less work for users

Indeed, a major focus of the program is to provide users with "no-hassle plug and play, with configuration files all built, so that all the manager has to do" is build the user account on a client, and it automatically has access to the network, said Toby Corey, senior director of marketing at the NetWare Products Division. "A bundled client is the bulldozer that lays the road" so that user- and client-specific software can be added later.

Without such preconfiguration, NetWare client installation is a convoluted process that involves installing four disks, as well as such tasks as getting drivers set up and configuring correct interrupts, Corey said.

The program was also designed to pave the way to greater OEM participation in preconfigured NetWare by providing the official Novell blessing, regularizing certification and announcing participants in the program, Corey said.

Among the participants are the following companies:

- Dell Computer Corp. and Compaq Computer Corp., which have been prebundling NetWare on their products for some time, are now NetWare Ready-certified.
- SynOptics Communications, Inc. and Cabletron Systems, Inc. are certified to run NetWare for SAA and Multiprotocol Routing Plus software on their respective hubs. In addition, Cabletron is certified to run NetWare Connect remote access software, as well as NetWare 3.x and 4.x and NetWare Management System.
- Digital Equipment Corp.'s Pathworks Version 5.0 software is certified to run NetWare server software, providing access to both NetWare and other network operating system-based services for NetWare and other types of clients.
- Memorex Telex N.V. is certified to include prebundled NetWare on its PCs and superservers.
- 3Com Corp. is certified to run Universal NetWare Client software on its EtherLink III and TokenLink III adapters.

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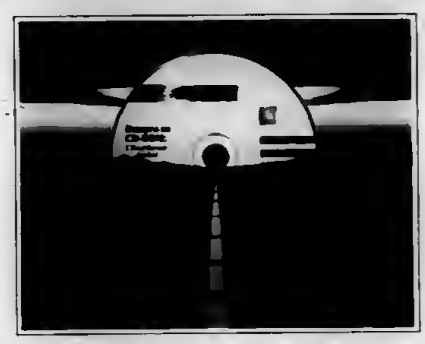

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Corporate reorganization

OSF trims down, mulls its future

By Jean S. Bozman

The Opeo Software Foundatioo (OSF) accelerated its reorganization this month, releasing the OSF/t 1.3 microkernel-based operating system and the OSF/Motif 2.0 graphical user interface (GUI).

The organization also began to trim back its corporate staff, as OSF vendor members met to plan how future product development will fit into an overall OSF architecture plan.

With the completion of the OSF/1 1.3 project and the announcement of OSF/Motif 2.0 at the Xhibition '94 show in San Jose, Calif., the OSF is ready to hand off development of these products to vendor-funded OSF project teams.

However, OSF/Motif 2.0 will continue to be tested for several months, according to David Tory, the OSF's chief executive officer.

"Normally, there's a three-month period for quality assurance and system test, so I expect shipment to be in August," Tory said.

As expected, the OSF will cut one-third of the 300 staff positions at its Cambridge, Mass., headquarters [CW, March 7]. About 20 staffers are expected to leave by July 1, and more layoffs will follow as projects are completed.

"We expect to be down to around 200 employees by the end of the year," Tory said. Software engineers will be let go along with support staff.

Structural changes

The OSF's transition was underlined by a two-day meeting of the new OSF Architecture Planning Council, which was designed to "set the goals and the road map" for future OSF projects, Tory said. About 15 council members met two weeks ago, including three user representatives.

Tory said the OSF will change from "an engineering-based organization to a process-management organization." But the vendors that fund projects may view the OSF as a means toward the end of achieving industry standardization for open systems, some analysts said.

"IBM and [Hewlett-Packard] and Digital don't need a third project to manage any process," said Roy Schulte, a vice president at Gartner Group, Inc.'s software management strategies service. "The only thing they need is some central broker to push paper around. OSF's strength was never in process management or project management."

Schulte noted that specific OSF technologies, such as the Distributed Computing Environment (DCE) modules, have always come from vendors. But previously, OSF engineers developed products based on requests for technology from vendors.

"The only way this technology can move fast enough is for the people who have the engineering resource to take direct control," Schulte said.

Using teamwork

From now on, vendors will team with one another to develop specific technologies in the OSF's Pre-Structured Technology groups. Users will be included in the projects to ensure the products meet business needs.

"The users' role is to use the business requirements as a filter to determine which technologies should be pursued," said Ted Hanss, chairman of the OSF's end-user steering committee and director of the Center for Information Technology Integration at the University of Michigan at Ann Arbor.

The OSF's trouble delivering products such as the Distributed Management Environment led systems vendors to create the Common Open Software Environment (COSE) last year, Schulte said.

The COSE process became part of a revamped OSF, which broadened its base in late March by adding vendor sponsors such as SunSoft, Inc. and Novell, Inc. The OSF's technologies will be handed over to X/Open Co. for testing and certification.

New releases

The OSF released the OSF/1 1.3 microkernel-based operating system two weeks ago. Last week, it was expected to announce the OSF/Motif 2.0 GUI, although the Common Desktop Environment is still based on OSF/Motif 1.2. The only large OSF development project that remains to be finished is DCE 1.1, due to ship by year's end.

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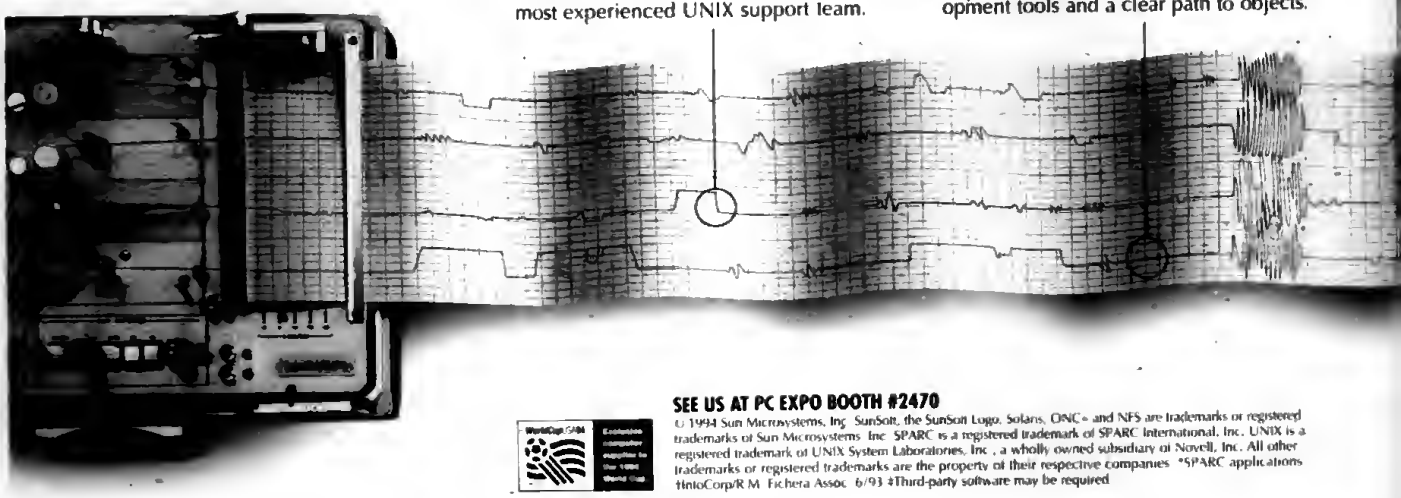

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[redacted]

Sales Technologies, Inc. has announced Snap Virtual Office, bundled sales force automation software.

According to the Atlanta company, the product is designed to address lead, territory and pipeline management, team selling and forecasting.

Snap Virtual Office combines Snap software with XcelleNet, Inc.'s RemoteWare Communications Management System so users can centrally create and manage password-protected graphical application menus.

Remote users can request, print and search reports from a list of files managed at a central site.

Prices range from $875 to $1,350 per user depending on the number of users.

▶ *Sales Technologies*
(404) 841-4000

Relay Technology, Inc. has announced Relay/OpenPort, a PC-based Windows product that lets users move data and data structures from one relational database to another.

According to the Vienna, Va., firm, the product converts the data structures and issues the correct SQL statements to fetch the data from the source database, then inserts, updates or replaces row data in the target database.

Relay/OpenPort can port database objects such as tables, indexes, views, permissions and procedures between different types of databases and database servers.

Prices range from $3,600 to $15,000, depending on configuration.

▶ *Relay Technology*
(703) 506-0500

Independence Technologies, Inc. has announced Data Access Line (DAL) Client 1.5 for Windows and Macintosh.

According to the Fremont, Calif., company, the product provides desktop applications with enterprisewide access to 12 different databases using Microsoft Corp.'s Open Database Connectivity.

DAL Client 1.5 lets users create multiplatform, client/server applications that are independent of the underlying database, operating system, hardware and network.

DAL Client 1.5 for Windows and Macintosh costs $149.

▶ *Independence Technologies*
(510) 438-2000

Intersoft Systems, Inc. has announced Concourse-TP 1.3, a client/server tool for data collection.

According to the Duluth, Ga., firm, Concourse-TP lets users implement data collection systems that gather and share information across multiple hardware and software platforms.

The product is host application independent, provides direct access to 3270 and 5250 legacy applications and lets users directly access IBM's DB2/2 database.

Concourse-TP consists of two elements: TP/Tools, an object-based development environment for data collection applications, and TP/Runtime, a data collection gateway engine for running applications generated with TP/Tools.

Concourse-TP/Tools costs $5,500, and Concourse-TP/Runtime costs $4,500.

▶ *Intersoft Systems*
(404) 381-7111

Decision Technology, Inc. has announced Decision Analyzer for Servers 1.0, client/server middleware that lets users retrieve information from any Open Database Connectivity-compliant database.

According to the Princeton, N.J., company, the product downloads data in fully formatted form and can prepare reports and create two- or three-dimensional spreadsheets.

Decision Analyzer for Servers can access information from any mainframe, midrange computer or LAN server.

Prices start at $4,000.

▶ *Decision Technology*
(609) 987-8950

Hewlett-Packard Co. has announced the LaserJet 4 Plus and the LaserJet 4M Plus 12-page/min. laser printers.

According to the Palo Alto, Calif., company, the printers feature true 600 by 600 dot/in. resolution and enhanced print quality, connectivity, environmental attributes and network management capability.

LaserJet 4 Plus provides printing for PC workgroups, and LaserJet 4M Plus adds connectivity for Macintosh, networked and mixed computing environments.

The printers are based on a 12-page/min. engine with a 25-MHz Intel Corp. i960 RISC processor with cache and advanced memory management.

LaserJet 4 Plus costs $1,839, and LaserJet 4M Plus costs $2,479.

▶ *Hewlett-Packard*
(415) 857-1501

Product short

Topcall Corp. has announced that the Topcall-Titan Fax server is integrated with Lotus Development Corp. and Microsoft Corp. messaging platforms. The product provides a fax viewer for inbound messages; a printer driver that fax-enables Windows applications; directory integration; and real-time status information. Cost: Starts at $25,000. Topcall, Wayne, Pa. (610) 688-2600.

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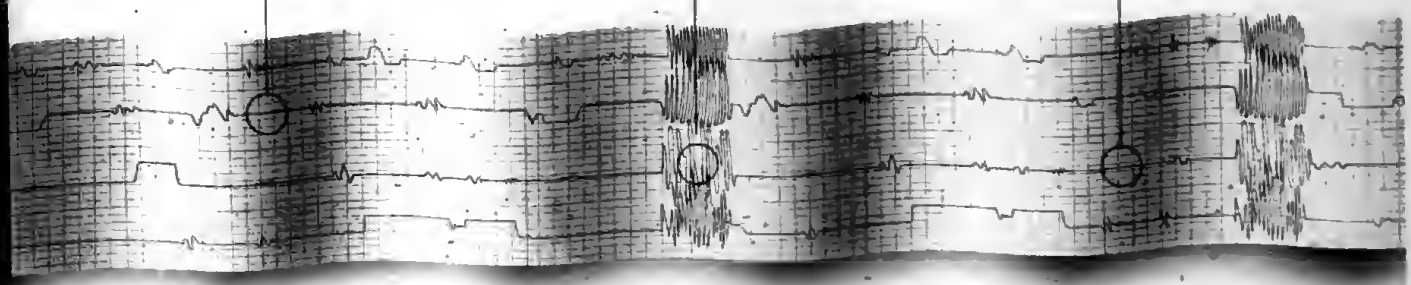

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Banyan puts AIX on ENS support list

Vendor shoots for wide range of platforms

By Elisabeth Horwitt

■ Banyan Systems, Inc. last week added IBM's AIX to the roster of systems supported by its Enterprise Network Services family.

With the shipment of ENS for AIX, the Westboro, Mass., company's multiyear strategy of providing a range of operating system platforms with a consistent set of enterprise services is on schedule, according to Bill Johnson, Banyan's vice president of corporate business development.

Banyan will soon be the only vendor to provide a consistent set of services — including directory, messaging, security and backup — across a broad set of platforms, said Jamie Lewis, president of the Burton Group, a Salt Lake City consultancy. "Early on, a lot of people wondered if they could, and they are proving that they can," he said.

Banyan flavors

Shipment times for various versions of ENS

VINES	1984
SCO UNIX	1992
NETWARE	1992
HP UX, AIX SOLARIS	1994 (Q4)
NT ADVANCED SERVER	1995

Spreading out

In addition to running on AIX, ENS runs on The Santa Cruz Operation's SCO Unix, Hewlett-Packard Co.'s HP/UX, Novell, Inc.'s NetWare and the original Banyan Vines platform. A Microsoft Corp. Windows NT Advanced Server version is due out next year, according to Banyan.

A broad range of client systems supported by ENS can use Banyan's StreetTalk directory to access databases, file sharing and printer services without worrying where or on what type of platform they reside, Johnson said.

The closest equivalent to ENS from Novell is Processor Independent NetWare. This implements NetWare 4.x "directly on the metal" or CPU, rather than on the operating system as ENS does, Lewis said. Processor Independent NetWare provides more powerful, RISC-based platforms for NetWare.

However, unlike ENS, Processor Independent NetWare cannot reside on a computer with a Unix operating system and the applications it supports, he added.

In contrast, companies that have chosen "AIX for a specific application and yet want the system to communicate with the rest of the company" can enable that via the StreetTalk directory in ENS, Lewis said.

Around the dial

This is how Nynex Corp. is using ENS for AIX. Nynex chose ENS on AIX as the platform for "the world's largest callback system," said Alan Cronshaw, manager of the Automatic Customer Contact System at the holding company.

An automated calling system interactively queries customers about their satisfaction with a recent Nynex service call. The information is then entered into the AIX database and disseminated to users throughout Nynex's service organization using StreetTalk, Cronshaw said. The Nynex division was already using Vines as its network operating system.

Nynex chose ENS for AIX instead of Vines because the RISC-based platform is significantly more powerful than the Intel Corp. 1486-based 66-MHz platform that supports Nynex's Vines implementation, Cronshaw said.

After a month of production use, ENS for AIX is working well and at considerably higher speeds than the Vines platform, he added. "Response time is excellent."

Pricing for ENS for AIX starts at $4,995 for an application server that supports no user log-ons and ranges up to $54,995 for a system that can support 1,000 user log-ons.

Banyan charges according to the number of users a given server can support. Once a user is logged on, that user can transparently access any of the ENS services supported across the organization.

Direct control eludes net carrier users

By Steve Moore

After five years of vendor promises, network management systems used by corporate customers still cannot interact closely with those used by public data networks. As a result, users have only limited ability to monitor and configure the public network "cloud" portions of their enterprisewide data networks.

Today, users are still limited to non-real-time monitoring and off-line provisioning of public network data circuits. This means users can monitor events or problems but still need the carrier to fix the problems. Similarly, users cannot allocate more bandwidth on their own — they must request it from the carriers, often waiting several hours for a response. Real-time configuration and bandwidth management capabilities remain wish-list items.

A sampling of carrier network management products

AT&T	Accunet Bandwidth Manager
BT	Concert
Pacific Bell	Optimizer
Sprint	Managed Network Service
WilTel	WilView

"You're probably not going to see a carrier giving a customer the ability to do things that would cause reconfiguration of a physical network. You probably will see a carrier give a customer the ability to reconfigure a logical network, like a private virtual network," said Dan Walters, IBM's program manager for Telecommunications Management Network products.

Almost here

Although they do not yet support direct user control of public network facilities, some carriers do offer users "near real-time" monitoring capabilities. "Real time means instantly, but right now you actually are getting this data as much as an hour after the event happened," said Mary Johnston Turner, a principal consultant at Northeast Consulting Resources, Inc. in Boston. "Those intervals will be reduced to as little as five to 15 minutes, but it's still not instant."

"Events happen in a network in milliseconds, but AT&T tends to only do sampling at five-minute intervals," said Jerry Harder, principal consultant at Renaissance Telecommunications Associates in Nashville. "During those intervals, your whole network can disappear and come back up."

Some users said they do not need instant response. "We haven't made any attempts to develop real-time capabilities because we don't see that it buys anyone anything, and the cost difference between near real time and real time is enormous," said Russ McGuire, manager of network management product development at Wiltel in Tulsa, Okla. "Real time means less than a second of response time, and when we say near real time, we're typically talking less than 60 seconds."

Response time issues aside, analysts cite two principal reasons carriers have not moved more quickly to enable users to go beyond passive monitoring and directly control public network facilities. These include uncertainties about competing network management standards and a lack of security features on the public network — so one customer's actions could unwittingly have an effect on another customer.

"If I attempt to reconfigure my ports and I bring down the switch, the carrier is going to end up holding the bag from a legal-liability point of view," Harder said.

But the standards issue looms ever larger. "The real question is, what management protocol will be used between the customer's network management system and the telco management system?" Walters asked. He said there is a "very good chance" that it will be the Simple Network Management Protocol (SNMP).

If it is SNMP, there will be a proxy agent somewhere between the customer's management system and the carrier's management system that translates SNMP requests into the Common Management Information Protocol (CMIP). But, Walters said, "CMIP is a richer protocol than SNMP," so SNMP features must be mapped to those of CMIP and new applications will take advantage of that mapping.

"Real time means instantly, but right now you are getting this data as much as an hour after the event happened."
— Mary Johnston Turner, Northeast Consulting Resources

Other users question whether currently available enterprise network management systems can monitor multivendor networks within a building or campus, let alone monitor wide-area links from multiple carriers.

"One of the fundamental problems with networking today is that unless you're running a homogeneous environment, there's no vendor out there who can really monitor it all for you," said the network manager at a major U.S. government agency. He added that while he is looking into carriers' customer network control and configuration offerings, "we don't have a carrier that's providing that kind of a service right now."

Jewels light the tunnels in Gopherspace

By Gary H. Anthes

Tunneling through Gopherspace can be a trying experience, but now users have a road map.

Gopher Jewels is a catalog of Gopher sites organized by category, a "subject tree" with more than 1,800 pointers to information on Internet Gopher servers. Gopher Jewels also includes two subscription list services, or List servers, that help users stay abreast of the latest developments in Gopherspace.

Gopher is a menu-driven client/server system for browsing the Internet. There are now some 7,000 Gopher servers worldwide, with information ranging from AIDS to zoology. Most Gopher servers include pointers to other servers, allowing users to hop from host to host around the world in multitiered quests for information.

"Gopher creates a seamless environment that is standardized, so you only have to know one set of commands to navigate anywhere," said David Riggins, creator of Gopher Jewels and associate director of the Office of Advanced Technology at the Texas Department of Commerce in Austin. Before Gopher, he said, users had to log in to each particular internet server; "then you were subject to the look and feel of that particular site."

But although Gopher, which was developed at the University of Minnesota, took much of the frustration out of Internet surfing, it did not solve all of the problems, Riggins said. "Trying to wander around Gopherspace, with 7,000-plus Gopher servers, to find a particular subject of interest is a bit more than the average person is willing to deal with," he said.

Planting the answer

The solution was subject trees. There are about 25 Gopher subject trees, and Gopher Jewels is one of the most popular. The tree is a hierarchy based on subject matter, and it lets users drill through layers of details to find items. It also allows key word searches of menu options and file names.

"Gopher Jewels is certainly one of the best, and it is a favorite of many users here," said Stephanie Hall, an archivist at the American Folk Life Center at the Library of Congress in Washington. She said it is especially thorough, up to date and well-maintained.

Hall said the Library's own Gopher subject tree contains links to the Gopher Jewels subject tree and other Internet subject trees around the world. "By pointing to each others' areas on subject trees, we make ourselves into a global team," she said.

In a recent month, there were 30,000 accesses to the Gopher Jewels server at the University of Southern California, Riggins said. "Fun Stuff," the most popular category, with 8,000 accesses, holds pictures and information on games, sports, restaurants and even a database of sunken shipwrecks for scuba divers. "Computers" was the second most popular category with 2,400 accesses.

Two list services supplement the subject tree. One is a service moderated by Riggins that announces interesting finds in Gopherspace, and the other, an unmoderated list for novice Gopher users, provides a forum for users to ask questions and comment on Gopher and related tools.

A Gopher Jewels menu allows access to "Gopher Tips," 18 help documents that cover most of Gopher's capabilities and related services such as index-search tools Jughead, Veronica and Archie. One document describes how to use "bookmarks," devices that enable users to easily return to points of interest by setting up direct paths to a Gopher server.

Constant change

Gopher Jewels is also included in the directory services of Galaxy, a World Wide Web service on EINet. EINet is a secure Internet transaction service offered by the Microelectronics and Computer Technology Corp. in Austin, Texas.

Riggins said he updates the Gopher Jewels subject tree constantly. "I'm out on the net every evening after work — two, three or four hours — hunting around for information," he said.

Locating the Jewels

To subscribe to the Gopher Jewels list services:

1. Send E-mail to: LISTPROC@EINET.NET.
2. Leave the subject blank.
3. On the first line of the body of the message enter the following command: SUBSCRIBE GOPHERJEWELS YOUR FIRST AND LAST NAME for the moderated list announcing interesting finds in Gopherspace; or SUBSCRIBE GOPHERJEWELS-TALK YOUR FIRST AND LAST NAME for the unmoderated list for novice Gopher users.

Oregon college wires multimedia highway

Campus links raise unique concerns about system security

By Mark Halper
PORTLAND, ORE

Portland Community College (PCC) is well on its way to wiring a high-speed highway to help hurtle full-motion video and lesser data bits across five campuses and, eventually, to points well beyond.

But although the 90,000-student college has made much progress during the last year — and its contractors have strung 1.2 million feet of wire, including 100M bit/sec. copper and 1G bit/sec. fiber — its remaining challenges include one particularly bedeviling task.

As Sam Ellis, PCC associate vice president of information services, noted, the college has yet to figure out how to give students, teachers and administrators access to wide-ranging educational services while protecting administrative information residing on a Hewlett-Packard Co. HP 9000 Unix minicomputer.

"We're pretty good at what we do, but we don't know how to go about security," bemoaned Ellis, who has overseen a massive 18-month information systems overhaul. The college is concerned that internal users could gain unauthorized access to data, he said, noting, "You can keep the enemy outside the wall, but what happens if they are already inside?"

Sam Ellis, PCC's associate vice president of IS: *"'Excuse me, coming through with a wire.' That's what we've been doing around here for six months."*

Marty Murray, who as chairwoman of the computer IS department is responsible for teaching students IS, added that the security question is not simply a matter of how. "It's also a phenomenal management problem," she said.

After all, agreed HP senior system support engineer Paul Jacobsen, at a two-year college such as PCC, students and faculty members are constantly coming and going, so assigning and tracking systems, network rights and privileges is a daunting task. HP is the coordinating contractor on a team that includes US West and GTE Northwest.

Safe but sorry

As it is now, Ellis' IS department uses a rudimentary firewall approach.

One HP 9000 is dedicated to processing student electronic mail, which is currently restricted to computer systems students. Another HP 9000 handles administrative E-mail as well as office automation and library resource applications. A third HP 9000 houses administrative information including accounting, financial aid and student records. Still another is dedicated to supporting Internet use and thereby preventing incoming internet users from wandering to other systems.

While such a setup is effective at keeping unwanted hands off certain data, it can also unnecessarily tie those hands, Ellis said.

Murray pointed out, for instance, that students can send E-mail messages to teachers but cannot receive messages. And faculty members such as herself have only limited access to campus computers when dialing in from a remote location, she said.

To Murray and other faculty members, a complete E-mail loop would enhance teacher/student relations.

"Being able to communicate with students on E-mail is a wonderful thing," she noted. "It's amazing what people will tell you or ask you that they won't say face-to-face."

Slowdown

PCC is paying about $12 million this year for its high-speed campus-to-campus links. It expects to receive about $4 million in federal funds in the fall but faces state budget cuts that could cause it to scale back future plans.

Beyond books

Resolving its security quandary will help take PCC a big step closer to its goal of freeing students from conventional educational and administrative confines.

On the administrative side, for example, Ellis noted that students could download transcripts of their grades and financial aid or payment updates.

Educationally, both Ellis and Murray expounded the virtues of stretching teaching media beyond textbook and classroom parameters. A pre-med student, for instance, could view a digitized video of heart surgery, or a history student could watch a video of a veteran describing the D-Day landing at Normandy.

"Students who just hate traditional read-it-in-a-textbook, they really like that kind of thing," Murray observed. In a fully operational system, all students would be able to use the Internet to communicate with people or access resources in foreign countries, she added.

PCC pays approximately $10,000 for an internet site license, and apropos to its highway management concerns, is unsure how it would assign Internet rights to the student body or to Portland residents in general, Ellis said.

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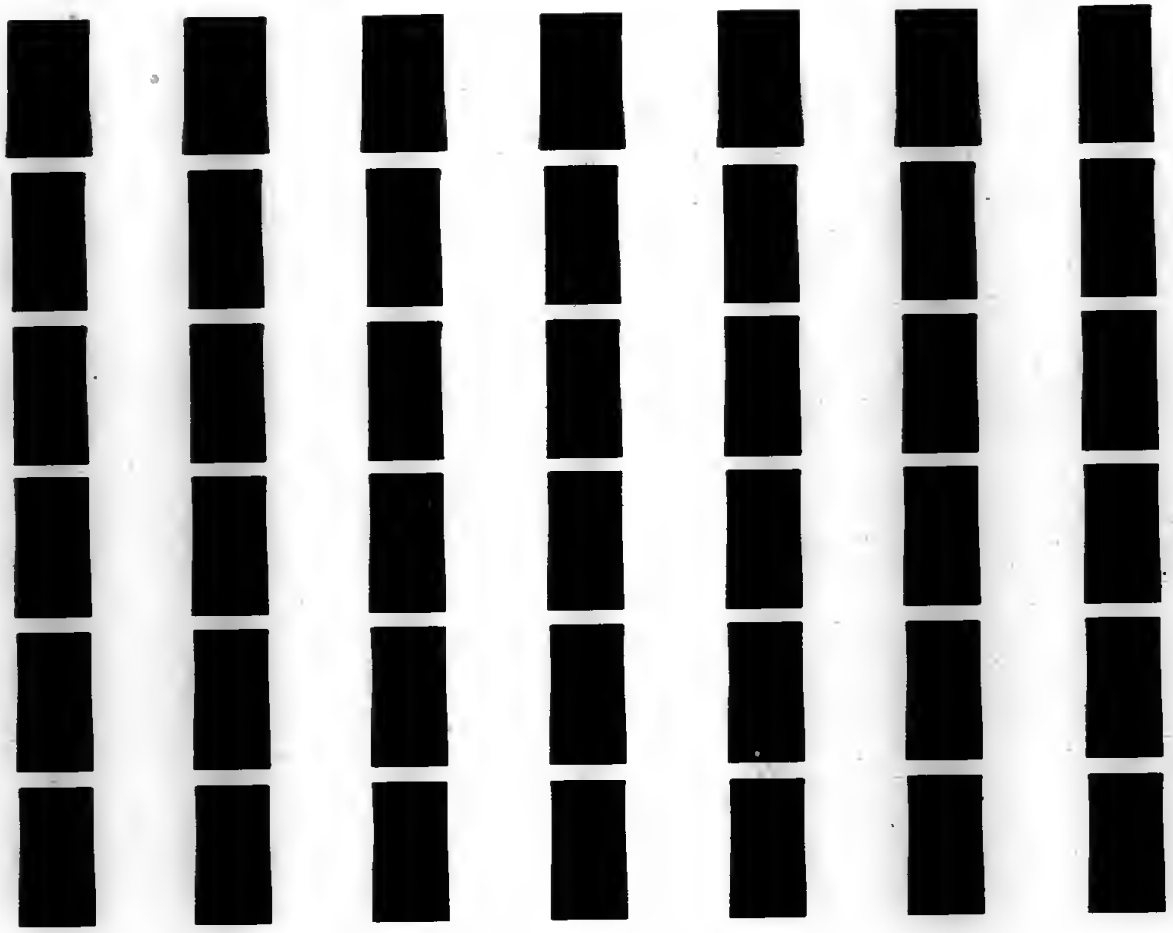

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Briefs

IBM adds frame relay

IBM said it will add frame-relay support to its 3746 Model 900, a 486-based channel extension unit that connects to the 3745 front-end processor. The frame-relay capabilities are scheduled to become available in October as part of a new release of IBM's Network Control Program software. The company also said it plans within a year to field a stand-alone version of the 3746 that supports Advanced Peer-to-Peer networks for use in branch offices. The 3746 handles up to 120 64K bit/sec. lines, compared with four on the 3745, and supports IBM's Escon fiber-optic interconnect.

GTE goes video

GTE Telephone Operations has announced plans to build a video network able to reach 7 million homes over the next decade. An initial investment of $250 million by the end of next year will bring the broadband (fiber and coaxial cable) network to four GTE markets: Thousand Oaks, Calif.; St. Petersburg/Clearwater, Fla; Honolulu; and nothern Virginia. Programming on the network is expected to begin in those markets by next year. GTE was among the first to test interactive and traditional video services — in Cerritos, Calif. — in 1988.

NIST OK's signature ID

The National Institute of Standards and Technology (NIST) has approved the Digital Signature Standard, which enables the receiver of a message or file to verify the identity of the sender and/or the integrity of the message or file via a public-key digital signature. The standard was proposed in 1991 but became mired in a patent dispute over use of the Digital Signature Algorithm. NIST said it concluded that no valid patent-infringement claims exist.

Retix readies SwitchStack

Retix, Inc. in Santa Monica, Calif., has announced an eight-port stackable Ethernet switch called SwitchStack 5000. Up to eight switching modules can be included in a single stack via a high-speed bus that can transmit packets at speeds of up to 175M bit/sec., Retix said. Modules can be stacked locally using twisted-pair cabling or distributed by fiber over distances of up to two kilometers. Each module can have up to two interfaces for high-speed server or backbone connections. SwitchStack will ship this month starting at $5,400.

Concert broadens support

IDEA, Inc. will add support for TCP/IP and Ethernet networks to its IDEA Concert line of communications processors, which connect SNA networks with PC LANs. Included will be a capability for connecting character terminals to IBM's AS/400 systems via the Ethernet 802.2 protocol, IDEA said. The new Telnet and Ethernet software modules will expand the Concert line beyond its current support for Novell, Inc.'s IPX protocol.

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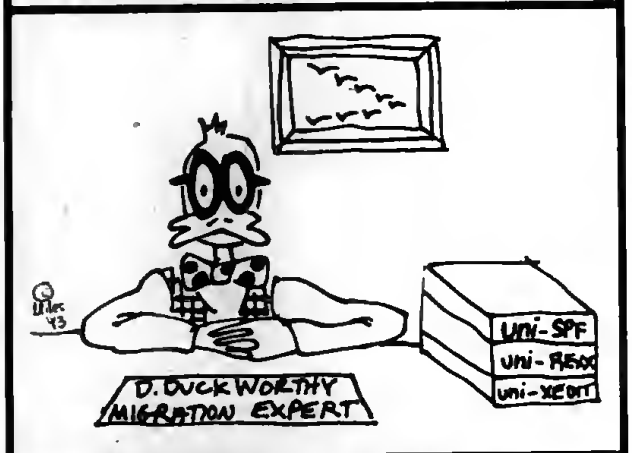

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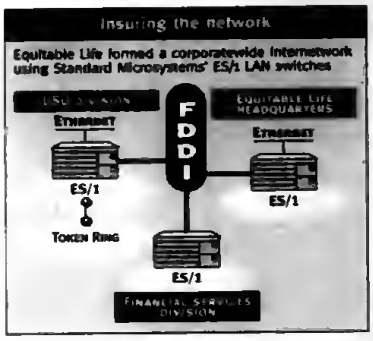
Insurer makes LAN switch

Subsidiary's success prompts corporatewide move

By Stephen P. Klett Jr

LAN switching has become the foundation of a corporatewide network consolidation effort at Equitable Life of Iowa, an insurer in Des Moines. The switches were originally installed to boost the efficiency of one division's overtaxed network.

Early last year, USG Annuity and Life Co., an Equitable subsidiary, installed an ES/1 enterprise LAN switch from Standard Microsystems Corp. in Hauppauge, N.Y., to eliminate congestion in its Token Ring-based network.



USG's network consisted of four Token Rings, each connected to a separate server dedicated to a specific application such as office automation, policy administration or inventory control. The fourth ring was home to an optical imaging server used to scan all customer policies.

While all 100 users on the network had access to each ring, all data traffic was routed through each of the servers, which led to bottlenecks, said Joe McCarthy, assistant vice president of information systems at USG. "During certain periods of the day, the network would actually freeze, and end users had to wait as long as 10 to 15 minutes until their systems responded," which was clearly unacceptable, McCarthy said.

Wise gamble

USG considered breaking the network into more rings by adding more servers but opted for the ES/1 because it offered more flexibility at a comparable cost. For example, the ES/1, which costs roughly $30,000, supports multiple rings and provides point-to-point connections between nodes. A typical server supports only one or two LAN segments and provides shared-bandwidth connections.

USG decided to roll the dice and install Standard Microsystems' LAN switch, which was at best neophyte technology at the time.

"There was some initial concern because switching was a new technology, and we weren't sure it would work. We didn't want to be too far out on the bleeding edge," McCarthy said.

As it turned out, he said, performance has been better than expected: The network freezes are gone, and overall response times have improved.

In fact, based on USG's experience, Equitable Life decided to go with LAN switching as the backbone for a corporatewide network consolidation project. Equitable's goal was to merge its network resources with those of USG and its financial services division, forming a single company network able to maintain service levels and keep pace with business growth. USG has more than 120,000 policies in force, representing more than $4 billion in assets, and expects to write another $1 billion in annuity premiums this year.

Compatibility concerns

Interconnecting each LAN without disrupting operations was a problem because Equitable's 300-user network is Ethernet-based while USG's is Token Ring-based. Converting either network to conform to the other's protocol would have been too expensive.

The other alternative — installing routers to perform protocol conversion — would also have been costly and have added a great deal of complexity to the network. Such an approach "would have tied up a server and wouldn't have been nearly as efficient as switching," McCarthy said.

So Equitable decided to follow USG's lead and implement an internetwork based on five ES/1 switches connected to a Fiber Distributed Data Interface backbone. Equitable and USG each have two switches installed, and the fifth is located at the company's financial services division.

> "There was some initial concern because switching was a new technology. . . . We didn't want to be too far out on the bleeding edge."
>
> —Joe McCarthy, USG Annuity and Life

The result is a flexible, scalable internetwork capable of handling Equitable's growth for the foreseeable future. For example, the ES/1 switches currently provide dedicated 16M and 10M bit/sec. connections between nodes. The switches support evolving networking technology such as Asynchronous Transfer Mode in case more bandwidth is needed in the future.

Also, interconnecting each division has enabled Equitable to cut costs by eliminating redundant resources. For example, now everyone on the network can access data from USG's optical server, eliminating the need for two additional imaging servers, McCarthy said.

Because of this ability to share resources across the enterprise, McCarthy said, Equitable expects to achieve payback within three years on the more than $150,000 it spent on the ES/1 switches.

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Lack of NIST backing won't kill GOSIP

By Suruchi Mohan

The Government Open Systems Interconnect Profile (GOSIP) will hold its own as a standard for quite a while, observers said. Although an expected recommendation by the National Institute of Standards and Technology (NIST) to back away from mandating GOSIP will mean the standard will no longer be the only game in town for government agencies, it will undoubtedly hang around.

The decision, which is expected within a month, will certainly lead to confusion.

"This leaves vendors in a quandary because they don't know what to do," said Jim Kerrigan, president of Colmar Corp. in Reston, Va. "It does not mean the death of GOSIP."

The action will also mean that life will be harder for Open Systems Interconnect (OSI), the protocol upon which GOSIP is based, according to Tassoa Nakassis, an acting division chief at NIST in Gaithersburg, Md. But, he said, it will not be an either/or situation with TCP/IP, the rival protocol that has steadily gained popularity. It will be "and/and," he said.

One reason for this is the need for interconnectivity and interoperability among foreign and domestic agencies. A way to achieve this openness is to broaden the GOSIP standard to include some of the aspects of TCP/IP, according to Otto Doll, group director of interactive research at International Data Corp. in Falls Church, Va.

Although the emphasis will still be on nonproprietary protocols, users will have more flexibility in making choices about protocols, said Jerry Mulvenna, manager of the network applications group at NIST.

Whatever decisions are made, TCP/IP users are likely to have a lot of say because of the protocol's large installed base.

Now, it is too early to do anything other than remove the GOSIP mandate, Mulvenna said. Meanwhile, NIST has issued a document called the Industry Government Open Systems Specification, which gives OSI procurement and usage guidance but does not mandate anything.

"What now for OSI?" Doll asked. "OSI is going to amble along and fight the battle of whether it is technologically superior."

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Overseas E-mail can inadvertently break law

By Keith Newman

Informal international fax or electronic-mail communications can have serious legal consequences if they are found to break the laws of the countries to which they are sent.

E-mail sent abroad in the course of commercial negotiations could leave the sender facing legal liability if a message is found to be misleading or deceptive in some way, said Cathie Harrison, a partner at law firm Chapman Tripp Sheffield Young in Auckland, New Zealand.

Because of the ease of fax and E-mail communications, she said, people often express themselves informally and forget the potential consequences. Harrison said there have already been lawsuits for defamation through computer bulletin boards or E-mail.

Harrison added the law has not yet caught up with technology in many cases. "Some forms of obligations must be signed and witnessed before they become legally enforceable, but because the law lags behind the way people are conducting business, some transactions may not be binding if they are recorded solely by an exchange of electronic messages," she said.

Newman is a writer at Computerworld New Zealand.

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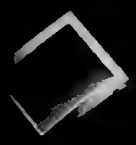

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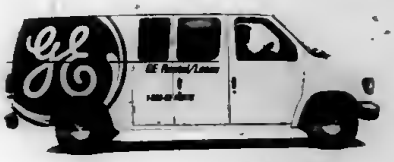

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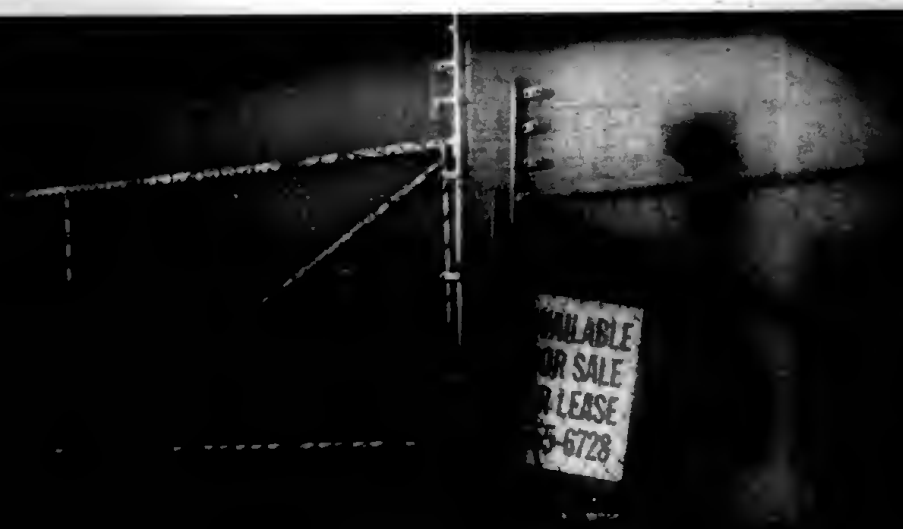

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Frye Computer Systems, Inc. has introduced Alert Interface Manager 1.0 (AIM), a Windows-based snap-in module that integrates with Novell, Inc.'s NetWare Management System (NMS).

According to the Boston firm, AIM 1.0 traps all alarms generated by NMSs and has an alarm configuration based on the NMS alarm database.

The product also alerts network managers of critical power-related and backup events sent by American Power Conversion products through NMSs, providing network managers with a centralized console of alarm management of all fault-tolerant systems.

AIM 1.0 supports an unlimited number of users and groups, is compatible with all major network hardware, sends selected alarms to selected groups and allows for multiple configuration files of recipient, list and alarm connections.

AIM 1.0 costs $895.

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Promark has introduced Rhobot/Win, a network performance testing system.

According to the Parsippany, N.J., company, Rhobot/Win tests Windows applications in a client/server environment.

The product simulates system stress to predict the performance of client/server, application and network combinations.

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Locus Computing Corp. has introduced PC-Interface 5.0 and PC-Interface Plus 2.0, PC-to-Unix connectivity products that provide transparent gateway access.

According to the Inglewood, Calif., company, the products feature access to Network File Systems (NFS), Andrew File Service and Distributed File Services, file and print sharing, NetWare coexistence and enhanced support for Windows desktop systems.

The NFS access will eliminate the need to separately configure each PC for access.

PC-Interface Plus 2.0 adds a Windows file transfer protocol utility, a Unix electronic-mail interface and advanced terminal emulation.

PC-Interface 5.0 costs $279, and PC-Interface Plus 2.0 costs $449.

▶ *Locus Computing*
(310) 670-6500

Axon Networks, Inc. has announced the Enterprise Communications Analysis module and the Traffic Transmission Management module, a package of network management tools.

According to the Newton, Mass., firm, Enterprise Communications Analysis lets network managers identify problems and view traffic patterns across different LAN segments or rings.

Traffic Transmission Management lets network managers perform highly specific tests on LAN segments from a central station.

Both products require the company's LANServant Manager Statistics Management module to operate.

Prices start at $2,500.

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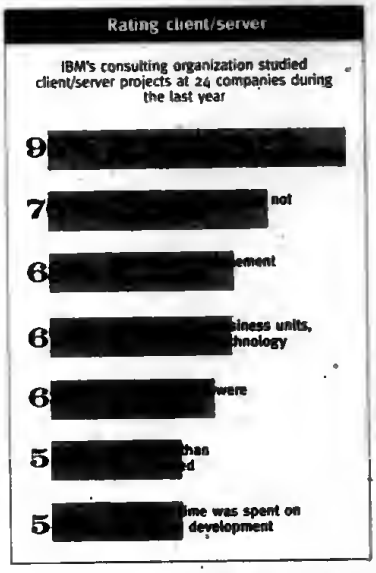
Model predicts client/server success

By Craig Stedman

IBM is betting that prospective customers will pay to hear its opinion on whether planned client/server projects are primed for success or doomed to fail.

IBM's consulting unit has taken the results of an internal study and created a model to measure the technical complexity of a project against a company's readiness to take on the client/server beast. The model can be used to predict the likely outcome of individual projects, IBM claimed.

IBM did not disclose the specific metric it used to come up with the so-called "band of success," which balances project complexity against readiness in such areas as development approach, corporate infrastructure, management and the relationship between the information systems organization and business units.



Confidence booster

IBM is promising users "a high degree of confidence that they'll succeed if they fit within the band, but we're not at the point where we say it's guaranteed," said Michael Sinneck, a vice president at IBM Consulting Group. IBM has sold two jobs using the model thus far, including one to Aetna Life and Casualty Co., Sinneck added.

Due to its latecomer status and hardware heritage, IBM needs something to improve its image and credibility as a client/server consulting vendor. Users and analysts said the predictive capabilities that the computer giant is promising may be a step in the right direction.

IBM's model "is a damn good checklist to use, especially if you're inexperienced in the client/server arena," said Craig Goldman, chief information officer at The Chase Manhattan Bank NA in New York. "We rode on this road without a road map, and this is a way of formulating the experiences that a lot of companies like us have had."

Goldman added that he has not seen similar predictive models from other consulting outfits, and analysts agreed that IBM appears to be the first vendor offering to take a stand on whether individual customers are prepared to deal with a client/server project.

Different measure

Electronic Data Systems Corp. and Andersen Consulting have their own complexity matrices, but those are more for judging whether business process changes will produce a return on investment, said Mike Melenovsky, a services analyst at International Data Corp. in Framingham, Mass.

IBM, on the other hand, "is trying to come up with something that says yes or no," Melenovsky added. "That could get customers to step back and think about issues that need to be thought about" before they embark on a project, such as corporate culture, organizational structure and management processes.

"Most other vendors that I've chatted with [about client/server] have said that we can't do it and we should let them come in and help us do it, whereas IBM's approach is different," noted John Foy, senior vice president of the corporate information department at New York Life Insurance Co. in New York.

IBM's predictive model sounds valuable "if one is not very experienced in client/server," Foy said. With a pair of client/server implementations under its belt, New York Life has no plans to use the service but might pay IBM to do an assessment "if we had some doubts" about a future project, Foy added.

"We tend to pride ourselves on having the infrastructure to do that sort of [assessment] ourselves," said Joseph Correira, vice president of applied technology at Travelers Insurance Co. in Hartford, Conn. However, he applauded IBM's approach as a good starting point for companies that do not have a firm footing in client/server.

Buyer be wary

IBM said it would try to sell added services to help customers deemed unlikely to succeed with client/server projects. Customers said they do not view this as a ploy to bring in more business. "I think we would be sophisticated enough that if a vendor were to do that to us, we would identify it pretty quickly," said John Foy, senior vice president of the corporate information department at New York Life.

Model, *page 104*

Retailers invest in multiple technologies

By Ellis Booker
WASHINGTON

Store aisles and checkout lines have become key battlegrounds for retailers, which are investing heavily in technology to capture more information about customers and make the shopping experience more satisfying.

As in past years, the Retail '94 trade show held here earlier this month had plenty of technical sessions and vendor booths relating to backroom technologies for better managing inventory or speeding communications with suppliers and distributors using electronic data interchange.

But the best-attended technical panels this year were those focusing on point-of-sale (POS) technologies and more exotic systems to provide on-demand shopping via kiosks and interactive cable systems.

For retailers, this new environment promises a fundamental shift in the way inventory is maintained and managed.

A trend to spend

Department stores led seven store categories in information systems investment expressed as a percent of 1992 sales. Department stores spent 2.11% of sales on IS; convenience stores were at the bottom of the list at 0.34%. Overall, retailers spent 0.7% of their revenue on IS, according to Ernst & Young's 12th Annual Survey of Retail Information Technology Expenses and Trends.

Special delivery

Blockbuster Entertainment Corp., for instance, is reportedly testing a prototype virtual inventory system called Soundsational that will electronically distribute CDs and video and audio tapes over high-speed networks to waiting stores. The products would be packaged at the store as the customer waits.

Technology, in fact, will serve a dual role, concluded Ernst & Young's 12th Annual Survey of Retail Information Technology Expenses and Trends. Technology "will give consumers the opportunity to do more of their shopping from home. But the excitement of technology will also give consumers a reason to go out and seek entertainment as they shop," the survey said.

Ron Griffin, vice president of application development at The Home Depot, Inc., agreed that the "virtual store," enabled by technologies ranging from personal digital assistants to global positioning systems and wireless networks, will have an important impact. Yet, he said he strongly believes that technologies such as inventory management and labor scheduling systems, which may be invisible to the consumer, will have a greater impact on retailers' fortunes than the more front-line technologies such as computerized kiosks and on-line shopping services.

At the register

Meanwhile, some of the most exciting new technologies are appearing at the checkout line.

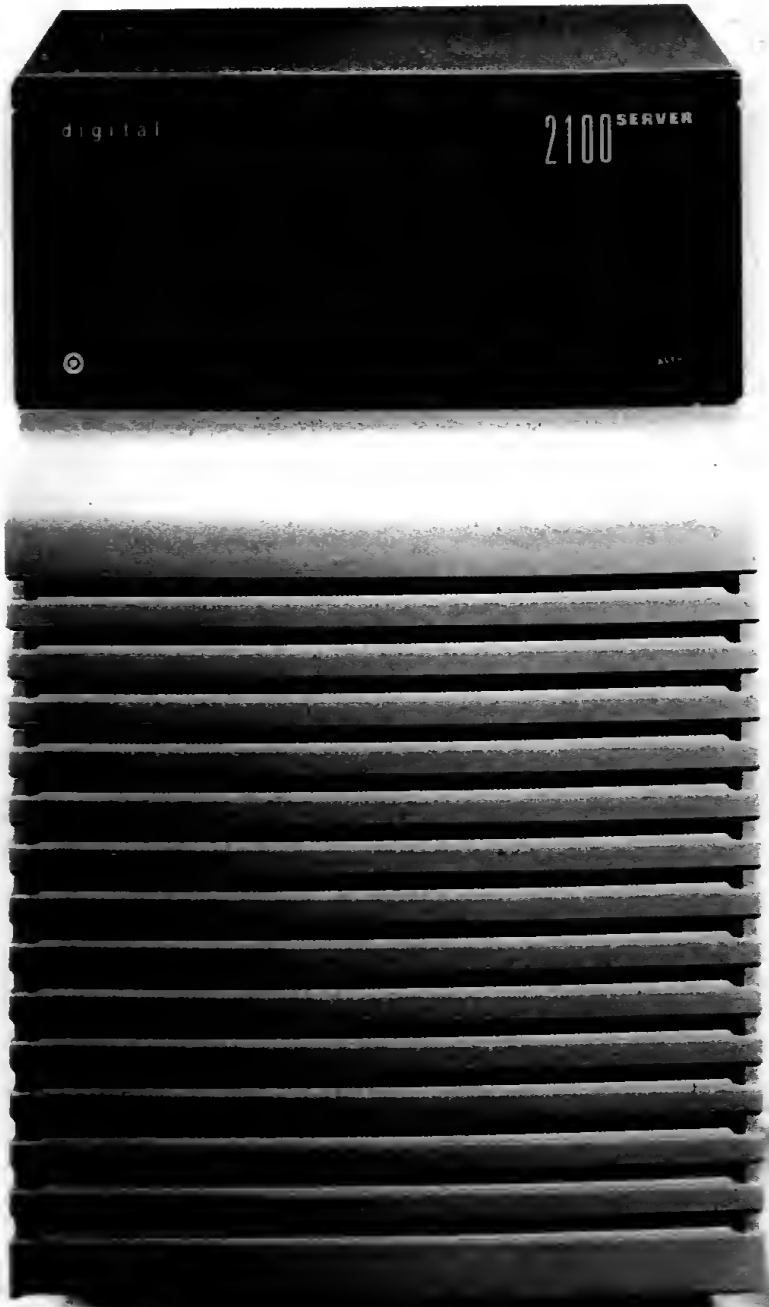
Frank's Nursery and Crafts chain in Detroit demonstrated that a well-designed, software-based POS application can ring up sales faster than a conventional register. It can also become an employee training and customer service platform.

Frank's is using a multimedia, touch-screen POS system in two of its Super Craft stores.

The platform, called Picture Perfect POS, provides graphics and text as well as full-motion video of products, advertisements and other information.

According to Larry Buresh, vice president and chief information officer at Frank's, the new platforms have reduced the time it takes to ring up a sale by 33% and cut employee training time by a whopping 50%.

Future enhancements to the system, which is based on a 33/50-MHz Intel Corp. 1486 PC with a 1,024- by 768-pixel monitor, will include customized salutations added to customers' receipts and video clips and data instructing both sales associates and customers how best to use the purchased item.



Putting Technology

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Bank of Boston tames risk-management system

By Thomas Hoffman

As part of a $30 million effort to automate its treasury operations, Bank of Boston is in the early stages of implementing an enterprisewide, Unix-based risk-management system designed to capture and solidify trading positions faster and more accurately for its money market dealers.

The system, based on a customized version of Intelcom Data Systems, Inc.'s Storm risk-management software for Sun Microsystems, Inc. workstations, was designed to automate many of the bank's manual trading activities such as credit verifications.

In the past, Bank of Boston's traders would accept a customer's order, write it down and have it picked up by a "runner." The runner would then forward the order to a back-office order-entry clerk, who would key it into the system. Those activities were often not reconciled until well after the financial markets closed, and as a result, traders did not know where they stood for hours at a time. Using the Storm system, traders can determine their trading positions immediately.

Protecting assets

Some 22% of the respondents in a recent survey said their companies had completed enterprisewide automated risk-management systems implementations, while 44% said their firms are installing risk-management systems. This is from a 1994 Ernst & Young/American Banker Special Report on Technology in Banking conducted among information systems executives at 1,200 community banks and 150 major banks with assets of more than $1 billion. Only 4% of those surveyed said their organizations are not even considering such projects.

"What we've effectively done is moved our risk reporting from our back-office accounting and control systems that were batch-oriented," said Steve Scullen, director of treasury systems at the Boston-based bank. He was referring to the company's IBM S/370, AS/400 and Digital Equipment Corp. VAX-based back-office architecture, which the bank is phasing out in the next few years. The Unix-based Storm system is "providing us a lot of automation in terms of deal flow. It's a much more dynamic setup," Scullen added.

One of many projects

The Storm system, which Bank of Boston is licensing through Micrognosis, Inc., will initially service 35 foreign exchange traders when it goes live this fall. The automated risk-management system is just one of several treasury-related projects that the nation's 19th-largest bank holding company is working on. Two years ago, the bank's treasury division began replacing its batch-oriented front- and back-office architectures with a Unix-based client/server network running over TCP/IP.

Next month, Bank of Boston, which has $42.4 billion in assets, will move 114 traders to a new trading floor replete with digital market data feeds using software from Teknekron Corp.

Analysts said Bank of Boston's endeavors reflect a growing trend among banks to move quickly to automate their risk-management environments. Connecting front- and back-office risk-management systems is deemed critical these days, according to Deborah Williams, a technology analyst at The Tower Group, a banking and financial services technology research firm in Wellesley, Mass.

Bank of Boston's Steve Scullen: *Storm is a 'dynamic setup'*

Banks are aggressively expanding their trading activities to leverage emerging revenue streams, and risk-management systems — designed to protect banks and their customers from financial exposure — have recently become closely scrutinized by federal and state banking regulators. Kidder, Peabody & Co., for example, is conducting an internal examination to determine to what extent, if any, its own risk-management environment was to blame for a two-year, $350 million phony government bond trading scheme that was allegedly masterminded by Kidder supertrader Joseph Jett.

With federal and state regulators casting a suspicious eye toward enterprisewide risk-management systems, automation "is a very hot subject for banks right now," Williams said.

Bank of Boston's risk-management strategies are also strongly influenced by its huge investments in Latin America. For example, Bank of Boston is the largest foreign bank in Argentina, with 40 branches and $2 billion in assets. Its presence is equally impressive in Brazil, where the bank has 26 locations and $2.5 billion in assets.

For Bank of Boston, which is actively involved in the volatile yet highly profitable practice of Brazilian currency trading, a dependable risk-management environment is vital, according to Dennis F. Shea, a financial analyst at Morgan Stanley & Co. in New York.

Meanwhile, Scullen said he believes Bank of Boston's automated risk-management environment will enable the firm's traders to react faster to changes in market positions. "The risk-management area is one where I think we'll be at the front of the pack," he said.

Platinum climbs back on its feet

Users 'cautiously optimistic' about its progress

By Rosemary Cafasso

■ When an information systems manager takes the big-risk step of selecting a client/server application, one of the worst possible outcomes is finding the chosen vendor in financial trouble.

But that is just what happened recently to Platinum Software Corp. customers.

In recent months, Irvine, Calif.-based Platinum has announced its share of bad news, including revenue of $14.2 million for the quarter ended in March — well below analysts' expectations; the resignation of several executives, including Gerald Blackie, company founder; and the restatement of $18 million in revenue for several quarters, a result of incorrectly recorded revenue.

"I assumed it was a little bit of hanky-panky," said Michael Huitt, manager of financial systems administration at Tesoro Petroleum Co. in San Antonio. "I was hoping they were just a little too aggressive" in recording sales. But, he added, "if they were way too aggressive, then they weren't long for this world, and I had a real software problem."

By last week, however, several Platinum users were beginning to breathe the first sighs of relief. While customers said they think it will take more time before their confidence in Platinum is fully restored, they also said they are pleased with the recent steps the company has taken to get back on track.

Platinum plans to sell off pieces of its business that are unrelated to its two core product lines: the Platinum LAN-based financial applications and Sequel to Platinum, its client/server applications suite. The company named Carmello Santoro as chief executive officer and brought in David Proctor, an ex-IBMer, as president and chief operating officer.

Positive feedback

Huitt said he recently met with Proctor and was impressed with his focus on quality. "They appear to have a pretty sound plan on doing a good job. You hope that plan comes through," Huitt said.

Terry Tung, senior manager of information systems at the Engineering, Construction & Environment Group of Morrison Knudson Corp., said Platinum's reorganization and recent settlement of a class action lawsuit are positive moves "that will allow them to get back on their feet again."

Industry analysts agreed that Platinum responded quickly after dropping its financial bomb in April. Platinum got its start 10 years ago as a provider of LAN financial software. The vendor claims an installed base of about 40,000 end-user nodes of its LAN version and approximately 250 licenses sold of its newer line, Sequel to Platinum.

"It's very good to see them focusing back on their core competencies," said Ed Black, a senior consultant at Aberdeen Group in Boston. Black said he does not expect the financial problems to "have a large effect on the installed base," but he added that "it will be an objection raised by their competition until they can prove they have worked their way through it."

A Platinum spokesman last week said the company has won new orders since April, although he declined to say how many.

According to Platinum users, the company has thus far been successful in restoring a "comfort level" by offering in-person reassurances that it is working to fix problems.

Free advice

Customers give Platinum the following recommendations:

- Stay on schedule with Sequel to Platinum upgrades.
- Focus more on quality.
- Stick with plans to concentrate on core businesses.
- Continue to provide good support, which customers say was of high quality during recent corporate troubles.

"They were pretty good about contacting us," said Bruce Steinke, corporate accounting manager at Clark Oil Refining & Marketing, Inc. in St. Louis. "They've offered to have [CEO] Carm [Santoro] meet with us, but our executive management hasn't felt they needed that."

"The day it happened, I got calls from three different Platinum executives to give me a briefing of what I would be seeing in the news," Tung said.

Now customers say they want to see Platinum follow through on its reorganization plans.

"They tell you they are doing the right things now, [but] obviously the proof is in the pudding," said Robert Sellers, a vice president at United Video Satellite Group, Inc. in Tulsa, Okla. "They understand they need to do better quality upgrades, and going back to their core business will help them do that. I look forward to those upgrades coming out to make sure they are doing what they said."

Steinke described his current comfort level with Platinum as "cautiously optimistic." He added, "The direction sounds good, but let's see the delivery."

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Disaster recovery

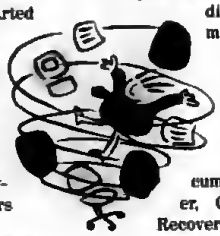
Users like IBM's backup options

By Thomas Hoffman
STERLING FORREST, N.Y.

IBM's 4-year-old Business Recovery Services (BRS) Division has quietly made a major impact on the worldwide disaster recovery industry, users and analysts said.

Customers said they appreciate many of the changes BRS has brought to the market, including allowing 30-day notice for contract cancellations, which is a dramatic departure from the standard five-year agreements most service providers require.

Because BRS started from the ground up when it was launched in March 1990, it was able to react immediately to changing customer requirements in the otherwise stodgy disaster recovery market, observers said.



By challenging the industry pricing model and delivering sorely needed midrange and client/server backup capabilities, BRS has quickly landed 4,000 worldwide clients in 42 different countries, including Texas Instruments, Inc., Campbell Soup Co. and NASA.

Prudential Securities, Inc. became a BRS customer earlier this year. "We have doubled our computer capacity at the recovery site" and reduced costs by one-sixth, said Bill Anderson, chief information officer at the New York brokerage.

Satisfied customer

Texas Instruments, Inc., which houses five IBM mainframes at its Plano, Texas, data center, also made the switch to BRS. Steve Groce, manager of operations at TI's Information Services Division, said his organization tests with BRS three to four times each year. Although Groce declined to specify, he said TI has had improved results with BRS over its former provider. "Fortunately, we haven't had to use BRS for anything else, praise the Lord."

The changes BRS has brought to the disaster recovery market have forced its competitors to react accordingly, resulting in an improved marketplace for services, analysts and customers said.

In 1990, BRS moved quickly to fill a growing void in the then-nascent midrange market by providing distributed IBM AS/400 recovery services.

"When IBM entered the business, they had no excess baggage, which in turn helped them to react the fastest to client/server disaster recovery," said Jeff Marinstein, president of Contingency Planning Research, Inc., a Jericho, N.Y. disaster recovery market researcher.

By the end of last year, BRS had catapulted to $150 million in revenue, placing it close on the heels of the incumbent industry leader, Comdisco Disaster Recovery Services, which touts approximately $200 million in annual sales. The disaster recovery group is an operating unit of IBM subsidiary Integrated Systems Solutions Corp. (see related story page 28).

Gauging needs

Before investing an estimated $400 million to create mainframe hot sites here and in Gaithersburg, Md., BRS conducted a study on customer requirements and moved quickly to fill a void for midrange and distributed backup capabilities, Marinstein said.

Prudential CIO Bill Anderson: *'We have doubled our computer capacity at the recovery site'*

And before BRS closed a hot site in Franklin Lakes, N.J., and opened a new facility here last September, 17 customers — including PaineWebber, Inc. and Coca-Cola Bottling Co. — worked with BRS to make recommendations on the infrastructure.

In fact, BRS has even consulted with clinical psychologists, including experts at the University of Texas at Austin, to get a feel for the emotional impact disasters have on employees.

"It helps us to better understand what our customers are going through," said William M. Hewitt, manager of marketing operations at BRS.

Digital users can have their OpenVMS and DCE, too

By Mary Brandel

For companies that want to use the Distributed Computing Environment (DCE) as the basis for their client/server architecture but want to stick with OpenVMS, Digital Equipment Corp. now offers a way.

Digital is now shipping a full suite of DCE core services for OpenVMS 1.2 running on Alpha AXP and VAX systems. Previously, full DCE services were available only on OSF/1, Digital's version of Unix. DCE was developed by the Open Software Foundation to offer a common infrastructure for heterogeneous platforms in large distributed environments.

With the addition of a security server and a cell directory server, Digital customers and independent software vendors can now build large-scale, multivendor applications for OpenVMS.

"For people who've been using VMS as main server machines, they can take advantage of all the DCE stuff without having to get into Unix servers, which may be unfamiliar," said Art Gaylord, director of project Pilgrim at the University of Massachusetts at Amherst, whose environment includes Unix and VMS.

Digital claims it is the first vendor to offer DCE core services for a major non-Unix server operating system. IBM is beta testing DCE for MVS and the AS/400, and Hewlett-Packard Co. has a limited release for MPE.

"All the vendors are coming out with [DCE support], which is great," Gaylord said. "The more vendors, the more freedom that's available to people like us."

Start at the top

For now, DCE appeals mainly to Fortune 500 or 1,000 companies, Gaylord said. "We will see large deployments in the next year or so," he added. "It's a matter of more vendors putting out basic DCE software and the [independent software vendors] writing applications that use it." Currently, people doing DCE-based pilot are mainly writing their own applications, he said.

The DCE Cell Directory Server and Security Server cost $2,195 each. An application development kit is $549. Digital offers a runtime version of its DCE services at no charge.

Model

CONTINUED FROM PAGE 99

For experienced users such as Travelers, a more valuable — and still missing — service would be one that measures the likely business value of a project, Correira said. "We have to look at why we're doing this journey," he noted. "That's more important to me than a predictor of your success."

In addition, IBM still must regain the confidence of some customers that are looking at client/server projects.

"I looked at [IBM] last year, and they didn't have their act together," said Mark Van Horn, manager of technical services at Pierce County Medical Bureau, Inc. in Tacoma, Wash. "They were very confused about what they had or didn't have to offer us."

IBM Consulting "has all the best intentions and has really tried to distance itself from the product side of IBM," Melenovsky said. "Unfortunately, changing the perceptions of the customer base has proven to be a challenge."

Briefs

Matching programs

Dun & Bradstreet Software has announced a training and certification program for its SmartStream client/server software that is targeted at its business partners such as Andersen Consulting and Ernst & Young. The announcement comes on the heels of SAP America, Inc.'s official opening of its Partner Training Academy in Dallas, which was set up to provide an educational program for its business partners, a group that also includes Andersen Consulting and Ernst & Young.

Convex takes the high end

Convex Computer Corp. expanded its C series of technical supercomputers, adding a high-end model based on gallium arsenide technology and rated at up to 1.6 billion floating-point operations per second per processor. The new C4/XA starts at $750,000 for a single processor and 256M bytes of memory and goes up to $2.7 million for a four-CPU model with 2G bytes of memory, Convex said. The company said it has installed C4/XA machines at three customer sites in Europe and Asia, including BMW Rolls-Royce in Germany. The system is available 60 to 90 days after ordering.

PC-to-AS/400 software available

Attachmate Corp. and **Relay Technology, Inc.** separately introduced software for connecting PCs to IBM's AS/400. Attachmate unveiled Rally for AS/400, an updated and renamed version of its year-old Extra terminal emulation software. Rally, priced at $195, includes Windows-based routing software that lets users bypass IBM's PC Support product. It is due to be linked to development tools such as Visual Basic and PowerBuilder in the fourth quarter, Attachmate said. Relay's new Relay/Gold 400 software also supports PC-to-AS/400 connectivity without PC Support and lists for $249. A separate file transfer package is also available, Relay said.

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Conley Corp. has introduced the SR2, a fault-tolerant redundant arrays of inexpensive disks (RAID) subsystem.

According to the New York company, the SR2 is a SCSI-2 compatible RAID disk array subsystem for Macintosh, Sun Microsystems, Inc., the Open Software Foundation, IBM AIX and Novell, Inc. platforms that provides on-line storage for up to 315G bytes of network data.

The SR2 subsystem contains no single point of failure and includes a 16-bit-wide SCSI-2 host connector, support for redundant host computers, improved fault tolerance, multiple host configuration, write-back caching and tagged-command queuing.

The SR2 subsystem is priced at $16,995.

▶ *Conley Corp.*
(212) 682-0162

World Software Corp. has announced Select Executive 4.1, a midrange database access tool for multiple platforms.

According to the San Rafael, Calif., company, the product provides transparent data extraction and data conversion.

Select Executive 4.1 runs on a PC under Windows or OS/2 connected to an AS/400 host, and it lets users select data from multiple sources, join and manipulate the data and insert the results into desktop applications.

Select Executive 4.1 costs $595.

▶ *World Software*
(415) 453-6100

Definitive Computer Services, Inc. has announced Hot Talk 5250 2.0, software that replaces remote emulation boards for 5250 terminal emulation to an AS/400 system.

According to the Richardson, Texas, company, the product includes X.25 configuration support so multiple users can enter the same port of the AS/400.

Hot Talk 5250 2.0 lets users access data at remote locations without the use of protocol converters or emulation cards.

Prices range from $450 to $995.

▶ *Definitive Computer Services*
(214) 705-8200

Clary Corp. has announced OnGuard LI-450 and OnGuard LI-1250, line-interactive uninterruptible power supplies for midrange systems and LANs.

According to the Monrovia, Calif., company, the products continually monitor input power to protect against brownouts and automatically shut down a system or network to preserve data in case of blackouts.

The OnGuard LI-450 is designed for electronic devices, PCs, small network servers and workstations.

The OnGuard LI-1250 is designed for large electronic devices, network servers and midrange systems.

The OnGuard LI-450 is priced at $477, and the OnGuard LI-1250 is priced at $999.

▶ *Clary*
(818) 359-4486

BMC Software, Inc. has announced Session Persist, a product that reestablishes VTAM application sessions following an application or network failure.

According to the Houston company, Session Persist reduces the time it takes to get users back on-line by automatically reconnecting sessions.

When the application is restarted, users are returned to the application's initial screen.

Prices start at $15,500.

▶ *BMC Software*
(713) 918-8800

More new products, *page 111*

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WINDOWS WORLD/Chicago

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Windows Corporate Solutions Program
Windows Strategies
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Windows Update
Windows Connectivity
Windows and Multimedia

Windows Developers Program
Application Strategies
Developers Toolbox

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Re-Engineering: Is It Possible?
Choosing the Right(sized) Environment
Integrating the Old and the New
Extending beyond the Enterprise

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Defining the Environment
Enabling the User
Enabling Applications

Tutorials
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Partial list of exhibitors as of June 9, 1994

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Ameritech Services
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Arcada Software
ASI
Attachmate Corp.
AT&T Software Replication Center
Auspex Systems Inc.
Automated Concepts, Inc.
Axis Communications, Inc.
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Bind-it Corporation
Cable-Comm Technologies
Cabletron Systems
Campbell Services
Charles Schwab & Company
Cheyenne Software
Chrysler Systems Inc.
CMP Publications
Coe-Truman Technologies
Comp Ed
Computer Publishing Group
Computer Training & Support Corporation
Computerworld
Conner Storage Systems
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Corporate Education
Dallas Semiconductor
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Digiboard
Digital Equipment Corporation
DTN
Dunn Systems, Inc.
ETI International, Inc.
Fischer International Systems
Forvus Research, Inc.
Frontier Technologies Corp.
Glenco Engineering, Inc.
GNWC Wire, Cable & Network Products
Greenbrier & Russel, Inc.
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Wednesday, July 27 ..... 10:00 am–5:00 pm
Thursday, July 28 ..... 10:00 am–4:00 pm

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The ***Enterprise Windows Showcase*** will feature live, hands-on demonstrations of enterprise-wide solutions. The focus will be on mission-critical solutions for four key industries: ***Banking and Financial Services, Health Care, Manufacturing*** and ***Retail.*** Industry-specific solutions providers will be on hand to show you the contribution Windows-based applications can make to your re-engineering initiatives...and ultimately your bottom line.

Continued from page 106

Butler & Curless Associates has introduced the Freedom Series/Executive Information System, designed specifically for distributors.

According to the Raleigh, N.C., company, the system provides more than 750 full-color charts, graphs and spreadsheets and allows up to 200 predetermined performance tests.

The product runs on IBM's AS/400 with Windows-based PCs acting as clients.

Prices start at $21,000.

▶ *Butler & Curless Associates*
(919) 847-1811

Worksright Software, Inc. has announced Zip/City System, software for the IBM System/36.

According to the Madison, Miss., company, Zip/City System is software with a data file containing all valid U.S. ZIP codes along with the matching cities and states.

The product was designed to eliminate keying of city and state names by ZIP code and to eliminate storage of city and state names as part of database normalization.

Zip/City System costs $199.

▶ *Worksright Software*
(601) 856-8337

Halberstadt & Co. has introduced the Warranty Notification and Claims Tracking module for the company's EMS/400 vehicle maintenance management software.

According to the Charlotte, N.C., company, the module lets users specify warranty intervals for individual vehicles, groups of vehicles, individual systems across groups of vehicles or individual inventory items.

The product alerts users when repair incidents occur within a specified interval and writes details of the incident to a file for review and processing.

The Warranty Notification and Claims Tracking module costs $1,500.

▶ *Halberstadt*
(704) 527-7940

Biscom, Inc. and NBS Systems, Inc. have announced Total Fax/Faxcom, fax software for IBM mainframe computer systems.

According to the Chelmsford, Mass., company, the product combines Biscom's fax server technology and NBS' mainframe software application.

Total-Fax/Faxcom features a complex instruction set computing interface, a batch application interface and support for up to 16 simultaneous output ports per server.

The product includes fax broadcasting and lets users create and transmit faxes on-line.

Prices range from $49 to $25,000

▶ *Biscom*
(508) 250-1800

The Information Systems Manager, Inc. has introduced a VAX/VMS component to its ISM/CP product line.

According to the Bethlehem, Pa., firm, the product lets PC users easily analyze the performance of Digital Equipment Corp. systems running VMS and provides a Windows-based graphical analysis of critical performance metrics.

Also, users can track historical usage and growth of process groups, device I/O and DECnet traffic; isolate bottlenecks and trouble spots; and define time periods and intervals to be analyzed.

The VAX/VMS component includes VMS-based programs to process system performance data and maintain a performance database on the host.

Prices start at $10,000.

▶ *The Information Systems Manager*
(610) 865-0300

Pennant Systems, The IBM Printing Systems Co., has introduced Advanced Function Presentation (AFP) Workbench 2.0 for Windows, a viewing software product.

According to the Norwalk, Conn., firm, Version 2.0 adds document annotation capabilities, usability enhancements, viewing support for additional datastreams and client/server applications that link it to the Document Composition Facility, MVS and VM.

AFP Workbench 2.0 for Windows includes options to improve AFP to System/390 MVS and VM users' connectivity.

The product costs $275.

▶ *Pennant Systems*
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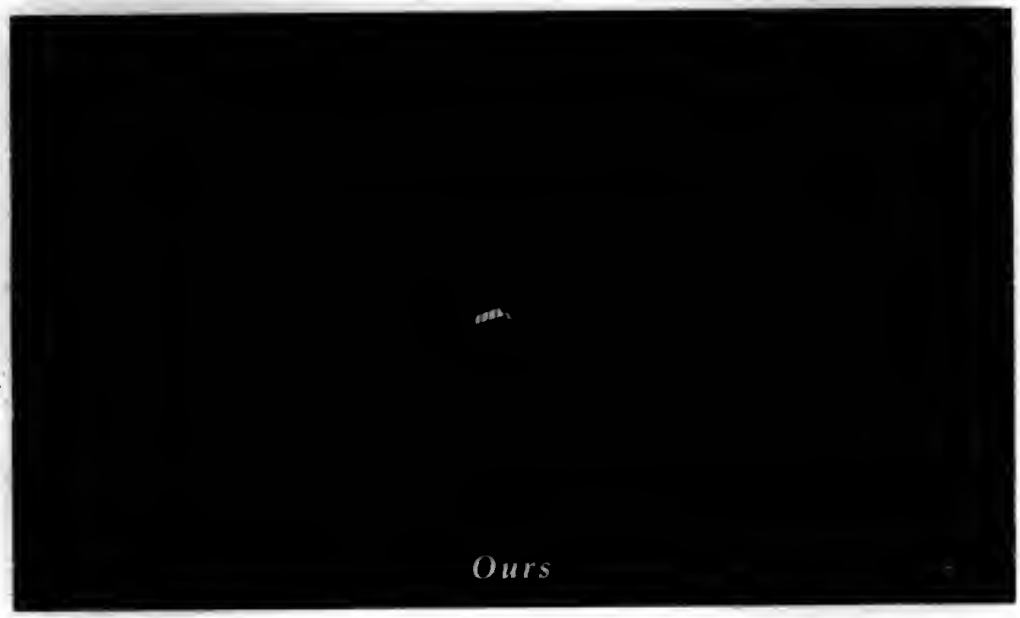

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PROGRESS SOFTWARE

Object-oriented languages

IBM's VisualAge turns language-neutral

The visual development software widens appeal by overcoming programming language barrier

By Craig Stedman
TORONTO

■ IBM is moving its VisualAge visual development software to additional object-oriented programming languages, starting with a C++ implementation that is due out early next year, company executives said.

The VisualAge technology, which lets users program by linking objects via a graphical user interface (GUI), is now based on Smalltalk. Besides C++, the tool is also scheduled to be supported on an object-based Cobol language that IBM is developing. That version of VisualAge should be available in late 1995, according to IBM.

Users and analysts said the move to a language-neutral strategy should widen the appeal of VisualAge and make it easier to swap objects among different languages via IBM's System Object Model object request broker. A VisualAge/C++ combination could also help mask the complexity of C++, they added.

More is better

Having multiple versions of VisualAge "is rather critical because we don't believe there's going to be just one object language," said Gene Friedman, vice president of applied technology at The Chase Manhattan Bank NA in New York, which has developed a pilot application using VisualAge.

Chase Manhattan is already working in Smalltalk, C++ and an object-based Cobol implementation, Friedman said. C++ in particular is "quite complicated" to use, and having a visual tool for it "could probably ease that" at least for snapping already-built objects together to compose applications, he said.

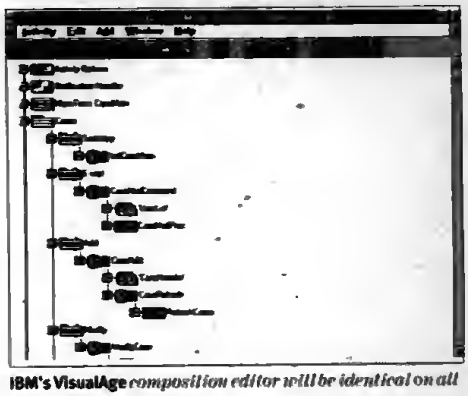
Many uses

"Today, you have to force [VisualAge users] to change their language if they're not using Smalltalk, and that requires a lot of training," said C. F. Wong, database administrator at Bank of Montreal in Toronto. The bank was a beta site for the Smalltalk-based VisualAge and also plans to develop a pilot application with the tool.

Smalltalk will likely be used for most of Bank of Montreal's object-oriented programming because of its flexibility and ease of use, Wong said. But he added that 10% to 20% of the bank's code may be written in C++ to take advantage of that language's higher performance capabilities, and having a C++ version of VisualAge "would be beneficial."

Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass., agreed that putting VisualAge on top of C++ might

VisualAge, *page 124*



IBM's VisualAge *composition editor will be identical on all VisualAge implementations*

On top of that

IBM also plans to implement Taligent, Inc.'s object class libraries and framework technologies on top of multiple languages, said Robert LeBlanc, manager of application development technology at IBM. But the Taligent products will become available first on C++, not Smalltalk

---

Michael Gentle

Technology is no solution

With the current fixation on client/server as the be-all and end-all of our efforts for the '90s, it is all too easy to forget that client/server is really about technology, and technology by itself never solved anyone's problems.

Business problems are owned by people (users) and solved by people (IS). For client/server to be successful, two "people" issues first need to be addressed: ensuring that users correctly specify business problems and that information technologists place more emphasis on software engineering than on the underlying technology. Poor definition of business problems is far and away the major culprit when projects fail to deliver.

The ripple effect of incorrect and incomplete requirements through the life of an application is the major contributor to our legendary woes: high costs, low returns, eternal maintenance, dissatisfied users.

As a profession, we have much to contribute to this sorry state of affairs, mainly by persisting in believing — despite ample evidence to the contrary — that a simple interview between user and analyst is sufficient to determine requirements; then documenting those requirements in IS-speak; and finally, thinking that a sign-off on the bottom of the page means that those requirements correspond to reality. This over-the-wall relationship needs to be replaced by a meaningful dialogue.

A proven way out of this situation is to make joint application design (JAD) the cornerstone of any dealings with users in the initial phase of a project, whether you're building a new system or buying a package. JAD sessions will walk users through their business problems in a structured way, with an appropriate emphasis on data and business rules. Without a solid data foundation, client/server is doomed to failure. JAD makes users active participants with a personal stake in the final outcome instead of passive customers with an eye on the contract.

> Joint application design makes users active participants with a personal stake in the final outcome.

Engineers wanted

Contrary to popular belief, CASE is not dead. It simply went underground until people became smart enough to separate the discipline from the tools. In order to be computer-aided, you first need to be a software engineer (a fool with a tool is still a fool). IS can be likened to an engineering discipline with a body of basic skills (data modeling, process modeling, etc.) independent of the underlying technology (big iron, client/server).

Through the '70s and '80s, we have been able to get away with an artisan approach to software development, mainly because we dealt with a single vendor and had control over our hardware and software. We could hardwire business logic into our solutions and still manage to tweak our way out of trouble. Quality, metrics and the production process were terms reserved for the auto industry.

In the '90s, however, the name of the game is components. Multiple hardware and software solutions abound. Bare-bones programming is out; code generation is in. Inexpensive packages and tools favor a Kleenex approach to IS, at the possible expense of correctly understood requirements. Before you glue all those pieces together, you'd better be sure you understand the business problem and the proposed solution in software engineering terms — mainly via a sound data foundation. The best SQL inquiry tool is not going to be of much help if the required data is incoherently located across applications and does not conform to the rules of the business.

To function in such an environment, information technologists need to be schooled in the discipline of software engineering and must possess the basic skills that sit atop any technological solution: the use of formalized software engineering methods, adequately supported by CASE technology.

Without this emphasis on quality through design and a standardization of the production process, client/server stands every chance of becoming a hopelessly entangled technological mess.

Gentle is a project manager at SmithKline Beecham Pharmaceuticals in Paris.

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Vendor gives users edge on software bugs

Software Edge uses E-mail to track problems

By Melinda-Carol Ballou

For developers seeking links to corporate electronic-mail systems for notices on software problems or updates about repairs, The Software Edge, Inc. in Colorado Springs announced late last month a new version of Defect Control System (DCS).

Version 2.1 links DCS' automatic internal mail system to E-mail systems from Microsoft Corp. and Lotus Development Corp. via the new DCS Mail Server (see chart). Version 2.1 also integrates DCS with Intersolv, Inc.'s PVCS configuration management system, which lets developers better manage and track software bugs and solutions, company officials said.

Getting to corporate E-mail is an important issue at some organizations. Michele Vaughn, project manager at MCI Communications Corp.'s Colorado Springs office, said her group cares about mail support. "All of our communication is done by MCI Mail, and [Lotus'] CC:Mail is going to have integration with MCI Mail," she said.

While other groups at MCI have already brought DCS in, Vaughn's group previously handled all software problems via MCI Mail. Reports had to be handled manually.

"With DCS, we will easily be able to track defects" and run reports so that they can tell end users when specific bug repairs will be available, she said.

DCS 2.1 incorporates a range of features, including support for graphical depiction of critical data related to software problems. DCS' reporting tools identify defect-prone code modules so that action can be taken early to remedy major problems, company officials said. And changes are documented in one operation, notifying team members immediately when any changes are made. Records are linked by an audit trail detailing who did what to a piece of code and when.

Quick diagnoses

Team members can also open a problem report to see what code changes were made to resolve a problem. This lets quality assurance staffers test only those areas most likely to be affected by changes so developers can quickly pinpoint the causes of newly introduced problems, company officials added.

The Software Edge's DCS gives notice by mail

1. Manager assigns problem report to developer to investigate.
2. DCS Mail Server references user profile and forwards notification via E-mail.
3. Developer gets message informing him of a new problem to investigate.

The links between PVCS and DCS will help developers better manage changes made to the software by automating the process, users said.

"One of the goals in our company is to continually improve the productivity of our developers, and we believe that integration of tools such as DCS and PVCS helps us toward that," said John Paul, a systems manager at Shared Medical Systems in Paoli, Pa. "The integration of CC:Mail and Microsoft Mail also helps us since we use both in-house. We see this as a step in the right direction, greatly assisting our company in development."

Industry analysts, however, said Software Edge must make absolutely clear to companies the benefits of purchasing a package to manage the process vs. retaining in-house systems that most customers already have in place.

"The penetration of third-party packages in this market is fairly small," said Kathy Averbach, an analyst at Sentry Market Research, a market research firm in Northboro, Mass. "The question is, can they motivate the development community to look outside for a package in this time of fiscal belt-tightening?"

But the price may be right. DCS Version 2.1 is priced at $495 for a single license, and the DCS Mail Server costs $995 per license. Both products are scheduled to ship this week.

Australian software methods may become international standards

By Peter Young

■ There is a gathering trend toward the swift adoption of Australian methods as the basis for international software productivity standards. Australian techniques for measuring the productivity of software development projects could win acceptance as de facto global standards as early as next month.

Developed by the Australian Software Metrics Association (ASMA), the standards have won support from vital user groups in the U.S. and Britain, according to Terry Wright, a member of ASMA's steering committee.

"What we are talking about here is a global de facto standard for measuring the quantitative output of software development projects," said Wright, who is also a software development project manager for the Victorian government.

Proof in the pudding

During the past four years, ASMA has refined its "software ladder" method of ranking user projects according to their delivery rates based on the time taken to generate one function point of software.

"Our standard has been back to industry for review and changes three times, and it works," Wright said. "That is the reason the U.S. and Britain have decided to discard theirs and use ours exclusively."

He predicted that its approval as the long-sought de facto international standard would emerge from an international workshop to be held this week in Melbourne, Australia.

"The whole purpose of the workshop is to agree what the standard is and what the format will be for maintaining it in the future," Wright said.

Software project managers interested in a crash course in developments should attend a half-day, joint seminar sponsored by ASMA and the Australian Computer Society and scheduled for June 29, according to Wright.

Davis Sullivan

Conflicting views

Wright declined to speculate on whether the standards would lead to growing conflict with benchmarking vendors tied to their own proprietary methods.

Arthur Gilbert, a specialist at BIS Shrapnel, said such conflict already exists. "At the end of the day, there are two ways of benchmarking. There is the top-down perspective, which we have, and the bottom up, which ASMA takes," he said. "If it were a car fleet, our approach would be from the fleet manager's viewpoint and ASMA's would be that of the engineers and maintenance people."

Beneficial for all

Globally accepted international standards for the software development process are for the common good, Wright said. They would make possible meaningful comparisons of software productivity on a worldwide basis.

ASMA's "ladder" is created by interviewing a range of organizations to uncover best- and worst-practice benchmarks against which other users can measure their own projects. The next release of ASMA's ladder, due out next month, will include smaller organizations for the first time, Wright said.

"We have shifted from the big mainframe projects to include smaller ones that are using tools such as object-oriented," Wright added. There are a number of projects coming in now that are breaking new ground."

Young writes for *Computerworld Australia*.

Briefs

Client/server support

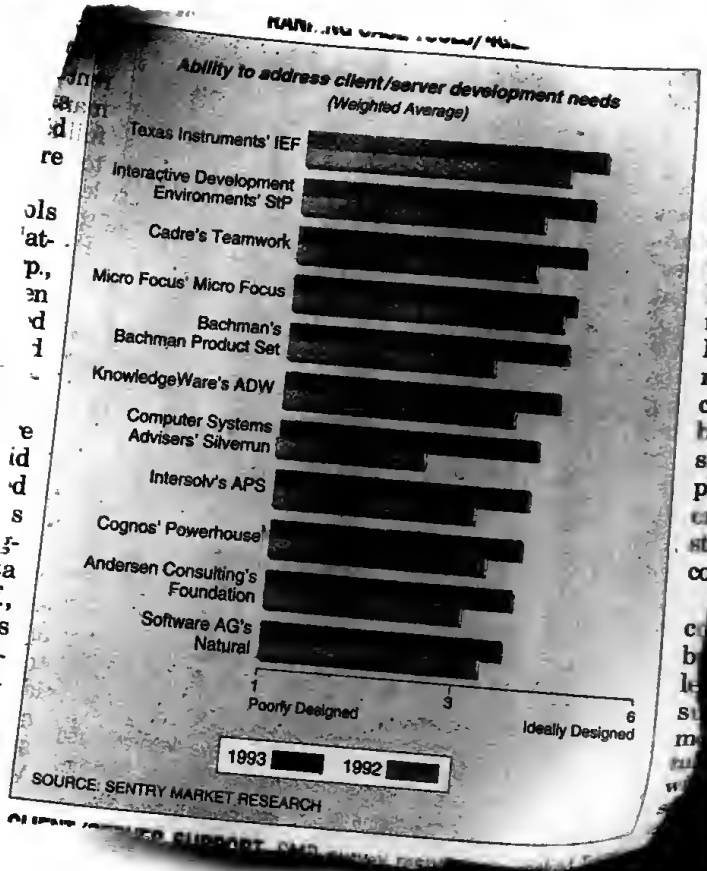
Andersen Consulting's foundation software organization announced the availability of Foundation for Cooperative Processing Version 2.0-LP. This tool, which has a Unix-based repository, was created jointly with Hewlett-Packard Co. and can scale up to support hundreds of client/server developers.

Acquisition made

KnowledgeWare, Inc. has acquired several products from Clear Access Corp. in Fairfield, Iowa, a leading vendor of desktop query and reporting systems for Windows and Macintosh platforms. As a result of the agreement, KnowledgeWare acquired ClearAccess, a graphical tool for database queries and reporting, and ClearManager, a client/server management tool for monitoring, controlling and supporting data access activities.

Japanese distributor chosen

Interactive Development Environments, Inc. announced that Tokyo-based Nichimen Data Systems, a subsidiary of Nichimen Corp., will be the first and exclusive distributor in Japan of Interactive Development Environments' Software through Pictures for Object Modeling Technique. The two companies forecast that sales of the product in Japan this year will reach $2 million, including both the English and Japanese versions.



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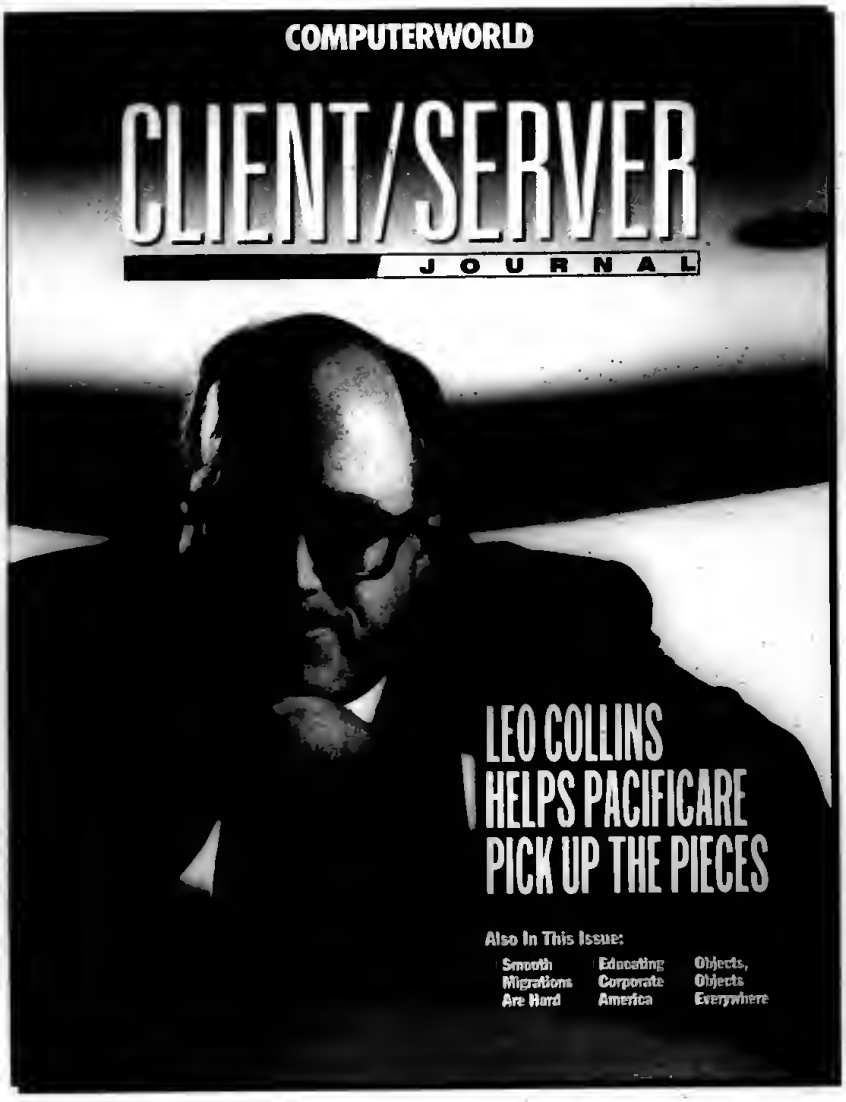

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COMPUTERWORLD

Bachman targets high-end client/server with Ellipse

By Melinda-Carol Ballou

Bachman Information Systems, Inc. earlier this month introduced a new version of the scalable client/server development tools that it acquired from Cooperative Solutions, Inc. last year.

This move had been expected [CW, Jude 6]. Industry analysts and early users said the new version, a Windows version of Ellipse, is likely to allow users to create higher-end, more transaction-intensive client/server applications.

Cooperative Solutions "was doing reliable client/server on the LAN before anyone else knew what it was. And if you look at robustness, they have a shot," said Judith Hurwitz, president of Hurwitz Consulting, Inc., a Watertown, Mass., consulting firm. "They have thought through issues that their competitors haven't considered and went through hell being the hot company in the market too early. Now that they are part of the larger infrastructure [at Bachman], there is an opportunity for them."

Scalability is essential

As corporations move from early pilot projects to more mission-critical, complex, transaction-intensive applications, the ability for tools to scale up to support such development is key, according to developers and analysts.

Developers at Roseville Telephone Co. in Roseville, Calif. — a beta user of the new Windows version of Ellipse — are doing early work for the company's budget, order-entry and customer records applications. These systems run about 5,000 transactions per hour, according to Bill Scharffenberg, a senior analyst at the company.

"We were looking to make better use of our desktop capabilities and to provide a [graphical user interface] to the data. Users kept asking us for the same type of things they see on their PC," Scharffenberg said. "We're sitting down with our users and rethinking how we do business."

Before choosing Ellipse, Scharffenberg went through 150 case studies for client/server and evaluated several tools during an 18-month period. He chose Ellipse primarily because of the way it handles transactions and allows for optimized performance due to application partitioning, he said.

Hurwitz was also impressed with the ability to "pull the plug on a transaction and recover it," she said. "Very few environments can claim that. The good news for them is that the market may now be at a place where it needs and appreciates those capabilities."

Ellipse will ship in the third quarter with clients for development and production on Windows or OS/2 connecting over Novell, Inc. or TCP/IP networks to Sybase, Inc.'s SQL Server and IBM's DB/2. The product will be offered at an introductory price of $12,500 for the repository and $1,999 per development license until Dec. 31. After that, prices will increase to $15,000 and $3,500, respectively.

Briefs

CFO appointed

Business Objects, Inc., a Cupertino, Calif., developer of client/server data access products, earlier this month announced the appointment of Robert Verheecke as chief financial officer. Verheecke was most recently CFO at NetFrame Systems, Inc., a computer systems manufacturer in Milpitas, Calif.

Change at the top

Trinzic Corp. announced that Frank Chisholm resigned as president to pursue other business interests. Chief Executive Officer Jim Gagnard will take over that job.

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In overtime, the save came from Cisco Systems. Cisco routers, combined with the expertise of EDS, provided the perfect way to deal with the mind boggling array of information needs presented by World Cup soccer. The Cisco routers offer impressive flexibility, so any number of protocols and interfaces can be used. In particular, Cisco's switched link activation handles overflow traffic when dedicated circuits overload—crucial for when the action heats up. After all, soccer journalists aren't known to suffer fools gladly, either.

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Wintriss Engineering Corp. has announced the Turbo C30-II Document Storage Processor (DSP) Development Board.

According to the San Diego firm, when combined with Tartan, Inc.'s C++ package, the product provides direct access to C30 hardware, symbolic source and machine-level debugging, compatibility with third-party libraries and object-oriented programming.

The Turbo C30-II DSP Development Board plugs into a PC/AT 16-bit bus, provides data transfer rates of up to 4.2M byte/sec. and operates at 33- and 40-MHz clock rates.

Prices start at $1,595.

▶ *Wintriss Engineering*
(619) 550-7300

National Instruments has announced the LabView SPC Tool Kit, a virtual instrument library for statistical process control applications.

According to the Austin, Texas, company, the product contains virtual instruments that integrate statistical analysis of processed data into the LabView data acquisition and control environment.

The LabView SPC Tool Kit includes control charts, process capability analysis and pareto analysis.

The product can analyze control chart data andcheck for several run rules. It allows users to enable or disable individual rules.

The LabView SPC Tool Kit costs $495.

▶ *National Instruments*
(512) 794-0100

Harris Corp. has introduced NightProbe and NightSim, graphical tools that reduce the software development time and labor costs associated with designing, building and maintaining training simulators and other complex real-time systems.

According to the Fort Lauderdale, Fla., company, the products are part of the NightStar development environment, an integrated tool set that lets developers analyze and diagnose system design issues. NightProbe provides real-time monitoring, altering and recording of program data, according to the company.

According to Harris, NightSim lets users build and monitor real-time applications that require scheduled process execution patterns.

NightProbe costs $2,000 and NightSim costs $5,000.

▶ *Harris*
(305) 974-1700

Techbridge Technology Corp. has announced Techbridge Builder, a graphical user interface, client/server, object-oriented application development environment for IBM's OS/2 operating system.

According to the North York, Ontario, company, the product lets users create workplace applications involving drag-and-drop operations and enterprisewide database access.

Techbridge Builder provides standard

VisualAge

CONTINUED FROM PAGE 113

help defang the language "if it's a well-designed environment." But users would still have to drop down into native C++ to design and build objects, she said.

Smalltalk is picking up momentum in the market as an easier migration path for programmers accustomed to working in Cobol, but it has scalability problems that push some users toward C++, Hurwitz said. "People get real particular and sort of religious about languages."

Robert LeBlanc, manager of application development technology at IBM's Toronto software lab, said VisualAge's GUI-based composition editor will still be written in Smalltalk, "but that's going to be hidden from the user. What you'll see is the C++ environment. You won't see what the underpinning is."

The look and feel of the composition editor will be identical in all of the VisualAge implementations, but users could get to their language of choice to create objects, added John Swainson, director of application development marketing at IBM. The C++ version, likely to be called Visual C Set ++, should be ready for beta testing late this year, he said.

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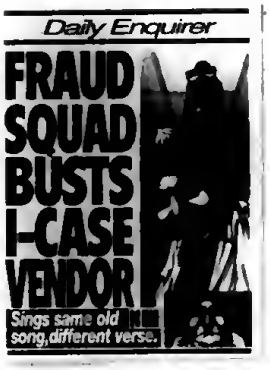

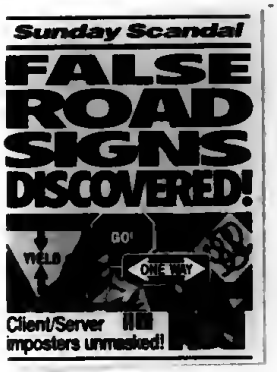

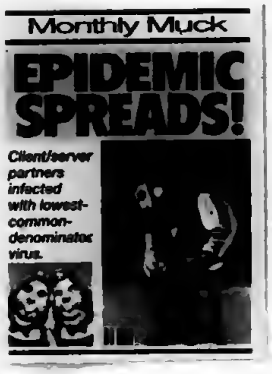

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Prices start at $4,995.

▶ *Techbridge Technology*
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Blyth Software, Inc. has announced Omnis 7², an enterprisewide client/server application development environment.

According to the Foster City, Calif., firm, the product features true portability, allowing developers to create an application once and then deploy it on a wide range of platforms.

Omnis 7² provides an enhanced data access architecture, extended middleware support, a developer's workbench, a SQL object browser, a SQL form builder and a graphing tool.

The developer's workbench lets users create and manage all objects required in front- and back-end client/server applications.

Prices start at $5,000.

▶ *Blyth Software*
(415) 571-0222

Advanced Visual Systems, Inc. has announced AVS/Express, a multiplatform application development environment. The Waltham, Mass., company, said AVS/Express is a standards-based environment designed for developing technical applications with interactive visualization and graphics functions.

The product includes visual programming, component technology to enable rapid prototyping and a data visualizer.

End users can add interfaces, graphics, imaging or visualization features to applications.

Prices start at $18,000

▶ *Advanced Visual Systems*
(617) 890-4300

Alsys, Inc. and Motorola, Inc. have announced RISCAda SPARCx68K and RISCAda Triad, Ada development environments that support Motorola's MVME162 processor boards.

According to Alsys in Burlington, Mass., the products feature an X Window System-based graphical user interface and operate on Sun Microsystems, Inc. workstations and servers.

RISCAda SPARCx68K lets users develop embedded applications targeting single-processor configurations using the standard Ada runtime model.

RISCAda Triad provides integrated tool and application support facilities for both single- and multiple-processor-based systems.

Prices start at $18,000 for RISCAda SPARCx68K and $22,500 for RISCAda Triad.

▶ *Alsys*
(617) 270-0030

Asta, Inc. has announced QA C++, an automated software analysis system that aims to improve portability, maintainability and reliability of C++ source code. It also calculates and reports on more than 40 different metrics to measure and document the quality of the source code and its object-oriented design. Cost: Starts at $6,000. Asta, Nashua, N.H. (603) 889-2230.... **Disk Software, Inc.** has announced TG-CAD Professional Version 5.0 for Windows and DOS, a computer-aided design, manufacturing and engineering developer's kit. Cost: $1,500 with source or $995 without. Disk Software, Plano, Texas (214) 423-7288.

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INSIDE
HUNTING Deadbeat Parents
Page 130

Catch-up time for convenience stores

The living was easy for the convenience store industry until it was clobbered by 24-hour supermarkets and shopping clubs. After years of neglecting technology, can convenience stores use it to reclaim the neighborhood?

By Julia King

For two decades, convenience stores were growth businesses, surefire moneymakers for entrepreneurs willing to put in long hours ringing up premium prices on cigarettes, soda and other commodity items. Then came the 1990s and an era of value-conscious consumers.

With the advent of wholesale grocery clubs and 24-hour supermarkets, the ranks of midnight buyers willing to pay top dollar for Pampers or Pepto-Bismol began to dwindle. Southland Corp. in Dallas (parent company of 7-Eleven Stores), Phoenix-based Circle K Corp. and National Convenience Stores, Inc. in Houston all filed for bankruptcy.

After years of unbridled growth, the market was saturated, and in 1991 alone, 1,600 individual retail stores closed.

To avoid the same fate, thousands more stores are now struggling with new pricing and product diversification strategies, including selling brand-name fast foods such as Dunkin' Donuts baked goods and becoming the least expensive place to buy milk and other staples. To reduce costs, improve efficiency and bolster customer service, many are also departing from past practices and making aggressive information technology plans. But observers say such plans must be exactingly executed — and fast — if many of the stores are to survive.

"Convenience retailing used to be a high-margin business. But now it's a high-volume business, which means stores have to be more productive and efficient," says Gene Gerke, president of Gerke & Associates, Inc., a retailing consultancy in Columbia, Md. "That's what they're looking to information technology to do."

Computer-based point-of-sale (POS) scanning systems that track purchases by item are dropping in price all the time, as is off-the-shelf labor-scheduling and accounting software designed specifically for the so-called C-store industry. But historically, few companies have employed information technology other than to plan store layouts or pinpoint high-traffic loca-

Catch-up time, *page 128*

Catch-up time

CONTINUED FROM PAGE 127

tions for new stores when the industry was expanding. Back then, most stores were making plenty of money without it.

All of that is changing. Information technology, and scanning in particular, is viewed by many industry observers as critical for C-stores to remain competitive.

Be prepared

But convenience stores must overcome several potential stumbling blocks to actually deploy information technology on a grand scale, among them the absence of a tradition of long-term planning. Another obstacle is an "overall lack of discipline" throughout the industry, according to John Eul, controller at convenience retailer Honey Farms, Inc. in Worcester, Mass.

Most store owners, Eul says, are entrepreneurial by nature and inclined to move quickly on issues. Others have a very simplistic view of a complex business.

"One of the biggest fallacies in the industry is that scanning is easy," says Eul, who also serves on the research and technology committee of the National Association of Convenience Stores. "In reality, scanning takes a lot of preparation. Because of the discipline needed, it has been hard to get off the ground."

What scanning has to offer C-stores is item-level detail about what's selling and what's not. Convenience retailers could use scanned data as large grocery stores do, to optimize stock, plan product promotions and electronically order replacement inventory.

But before any of this can happen, companies must develop electronic price books, which catalog price and unit-size data. This data must match data scanned from products at store registers to ensure the accuracy of back-office invoicing and accounting systems. Also, management must establish relationships with wholesalers willing to replenish stock in small quantities. And store employees and managers must be trained on the systems.

"Our whole IS strategy is based on empowering store associates and eliminating their administrative load so they can focus more on the customer."

— Larry Issacson, director of systems and programming at Wawa, Inc., operator of 512 convenience stores in the mid-Atlantic states

Certain companies are slowly taking lead positions by laying the groundwork for integrating scanning, and information technology in general, into day-to-day operations. Among them is Wawa, Inc., an $800 million operator of 512 stores in the mid-Atlantic states.

"Our whole IS strategy is based on empowering store associates and eliminating their administrative load so they can focus more on the customer," says Larry Issacson, director of systems and programming.

To this end, Wawa has installed PCs and vertical software from Park City Group (formerly the Fields Software division of Mrs. Fields, Inc.) at each of its stores and initiated a three-store pilot program in preparation for moving all stores to scanning by the end of 1995. Issacson says the company tried scanning in 1990 only to find it couldn't support it without first developing and implementing a very specific retail data model.

"Like many people, we kind of wandered into [scanning] and found it was a very deep pool," Issacson says.

A detailed account

Sheetz, Inc., a 165-store chain based in Altoona, Pa., has also placed PC-based POS systems in several stores in preparation for a move to scanning and item-level sales reporting. For now, the company works from summary sales reports, which are uploaded each night from the store-based PCs to an antiquated Quantel mainframe. In six months this will be replaced by a Unix-based open systems platform, according to MIS manager George Medairy, whose nine-person IS staff is also developing an executive information system that will furnish managers with data from all functional groups, such as sales and marketing.

In the long run, Medairy says, the line-item detail that scanning provides is critical to all of Sheetz's business functions. Among other things, the information will enable store managers to focus on what motivates consumer purchases and how to staff stores.

"Convenience retailing used to be a high-margin business. But now it's a high-volume business, which means stores have to be more productive and efficient. That's what they're looking to information technology to do."

— Gene Gerke, president of Gerke & Associates, Inc., a retailing consultancy in Columbia, Mo.

The goal, Medairy says, is to enable store managers to easily collect data and perform "what-if" analyses.

Working out the glitches

Waltham, Mass.-based Store 24's goal is much the same. "Financial pressures are forcing us to redefine product offerings and mix, which scanning should help us do," says Paul Doucette, chief financial officer. But so far, scanning hasn't had large payoffs because many of Store 24's suppliers aren't set up to use the system. This has been a major barrier to achieving the cost efficiency scanning would afford.

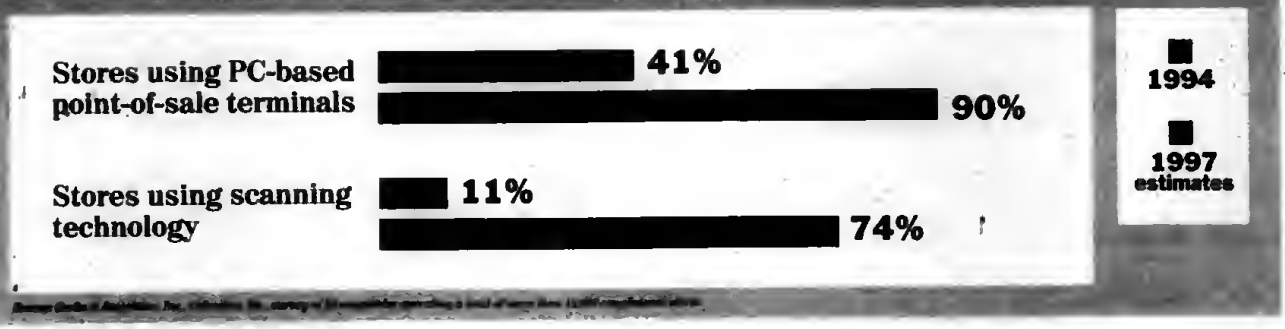
"Larger suppliers like Frito-Lay are set up," Doucette says. "The major problem is with smaller, local suppliers of items like pastries. The integration issue still hasn't been solved, so we're maintaining and updating our price book on a daily basis." Getting scanning down cold may take another two years, he says.

And because many convenience retailers are still in the testing phase of scanning projects, it remains to be seen whether technology will work to shore up eroding sales, win new customers and win back customers who now travel a few blocks farther to pay lower prices at a supermarket. Gerke, for one, isn't very optimistic.

Compared with their counterparts in other sectors of the retail industry, "C-stores just don't seem to realize how much is involved with scanning and [information technology] in general," he says. "It's always been an entrepreneurial industry, one that's not systematic in its approach to things. So it's definitely going to be a struggle. Then again, they really don't have much choice." ■

King is a senior editor at *Computerworld*.

TOOLS FOR SURVIVAL *Convenience stores are expected to begin implementing information technology in a big way — and fast*



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Dialing for deadbeats

Delinquent parents beware! There's no more hiding in Massachusetts, as that state's Department of Revenue uses its new role and computer technology to hunt down delinquent child support providers.

By Alan R. Earls

When Susan Brotchie, a single mother, finally began receiving regular child support payments from her child's father, "it was like winning the lottery," she says.

Under the traditional system, payments to her child had been years in arrears, and the likelihood of ever getting paid was slim, says Brotchie, who is also president of Advocates for Better Child Support.

But Brotchie lives in Massachusetts, where a new state Department of Revenue (DOR) collection program has revolutionized the world of child support collections. The key has been putting the DOR, not welfare, in charge of collections, armed with its database of taxpayer identification information.

"The DOR's records are always very accurate now, and the payments come in like clockwork," Brotchie says. "Even when the child's father changed jobs, the checks started again right away."

For now, Brotchie's experiences are still unusual. Nationally, some $20 billion is owed by delinquent parents to more than 17 million children, she says. However, with more aggressive computer use in collections, Brotchie's story may become more typical.

Where there's a will

Growing collection problems and a strain on assistance program budgets are driving the effort to find information technology solutions to collection methods and fraud detection, according to Robert Metia, director of strategic planning for the Massachusetts DOR.

"Divorce and children being born out of wedlock have skyrocketed. No matter how many employees an agency hires, they would never have enough using traditional methods," Melia says.

In response, the commonwealth of Massachusetts reassigned the task of chasing delinquent parents to its DOR. This has enabled the state to use its tax ID database to locate "deadbeats" quickly and track them if they change jobs and immediately notify the new employer.

Nationally, $20 billion is owed by 15 million parents to 17 million children.

The result: In two years the state has boosted its child support and alimony compliance rate from 59% to 78%, Melia says, while "other states have only been able to show a 1% improvement rate per year." Those efforts earned the state awards from the Ford Foundation and the American Management Association.

The program has been so successful that Massachusetts has invited other states to access its database to help with their tracking efforts, and it has asked if it can access/available databases from other states. New Hampshire has accepted the offer and is in the process of drafting a formal agreement to share social services and revenue department information.

Although computers are key to the Massachusetts system, the program is not really "high tech." Instead, Melia says, the new system works largely because of the state's clout: Employers in Massachusetts must report the names and social security numbers of those they hire within two weeks.

"In any given week some 20,000 people are hired, and about 800 of them owe child support," Melia says. Now, instead of having to "physically grab someone and put them in jail" to compel payment, Melia says, it is a simple matter of matching the DOR list of parents owing money with incoming employer data. Then an order is automatically issued to a company's payroll office indicating the amount the company must withhold for child support.

Melia says the state also regularly reviews other assets it is privy to, including bank accounts and tax refunds, and makes similar arrangements to move the money to the children to whom it legally belongs.

Another sophisticated collection tool on the horizon is a program that uses a commercial artificial intelligence shell produced by Lockheed Corp. in Calabasas, Calif. It reviews the behavior of people suspected of hiding income. "It looks at factors like the kind of car you drive — from Department of Motor Vehicle records — and provides a profile of those meriting further investigation," Melia says.

The greatest tool, however, will come from states sharing their databases, making it easier to track deadbeats immediately as they move around from state to state and resurface in new jobs and homes. ■

Earls is a free-lance writer in Franklin, Mass.

The commonwealth of Massachusetts has had dramatic success in tracking down "deadbeats" through a combination of computer technology and the Department of Revenue's clout.

1 **Department of Revenue, not welfare, is responsible for tracking delinquent parents.**

2 **All employers must report name and social security number of employees within two weeks of hire.**

3 **State matches DOR database of parents owing money with incoming data from employers. An order is automatically issued to a company's payroll office with the amount it must withhold for child support.**

Executive Track

U.S. Computer Services (USCS), a Sacramento, Calif., transaction management and billing services provider, has announced the promotion of **Scott Langdon** to the new position of vice president of corporate information services and chief information officer. His promotion is part of a restructuring and centralization of USCS' corporate information services. He will report to the office of the chairman. Prior to this, Langdon was director of Cable Data/Corporate Information Services, a division of USCS.

MCA/Universal Information Services in Universal City, Calif., has announced the promotion of **George Brenner** to vice president and CIO. Brenner was previously director of the division, a position he held since 1987 when he joined MCA from the Turner Broadcasting System.

Fidelity Investment Co. in Boston has announced that **Bill Stewart** was appointed vice president of retail systems. He will report to Albert Aiello Jr., president of Fidelity System Co. Stewart previously worked at a private consulting firm and before that was a manager of retail systems at Merrill Lynch & Co. and New York Life Insurance Co. in New York.

Datapage Technologies - Automated Information Systems in St. Louis has announced the appointment of **Milton (Tim) Rand Jr.** as vice president of information systems. He will be responsible for software development and computer operations and will oversee the entire Datapage programming staff.

Rand joined Datapage in April. He was previously manager of project management at Strata Group in St. Louis. He also served as director of international markets at Mento Business Systems in St. Louis and as director of IS at the American Red Cross in St. Louis.

Lintas Worldwide in New York has announced the appointment of **Jim Mazzarella** as director of IS management. He will be responsible for implementing a worldwide strategic technology plan for the company, emphasizing standards, digital transmission and interactive multimedia. Prior to joining Lintas, Mazzarella was assistant vice president of financial systems at Skandia International. Before that, he was manager of financial systems at PaineWebber, Inc. in New York.

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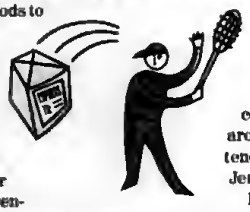
Intelligence Files

Wilson wins at wireless

Sales representatives at Wilson Sporting Goods have found a new way to win at their own game. Using wireless technology, salespeople from the Chicago-based sporting goods company are speeding up the process of getting goods to their customers.



As the first client of a new wireless application developed by ARDIS in Lancaster, Ill., the Wilson sales force is able to access the mainframe computer in Chicago and make inventory queries of available sporting goods, place orders and arrange for shipping, billing and invoicing in their clients' sporting goods store. Orders are processed and, in most cases, shipped on the same day.

The result has been the ability to shave four to five days off the previous delivery cycle, according to David Jensen, national sales director at Wilson.

"The customer clearly knows at the time the order is placed not only that it will be there, but when it will be there. In a business where you're serving 12,000 customers nationwide, that's a tremendous advantage," Jensen says.

The system also allows Wilson to reduce its customer service staff because field sales representatives are now providing much of that service. Sales representatives benefit from direct access to information on their clients, and cash flow is improved by the quicker invoicing and shipping, Jensen says.

Wilson began using the wireless system seven months ago with the company's team sports and golf product divisions, Jensen says. The third product division, racquet sports, is just now introducing the system.

The wireless system is also working wonders to advance the image of the company. "Like any company that has been around for a while, customers tended to think of us as dated," Jensen says.

But the wireless system has put the ball back in Wilson's court, giving "a fresh look on the company — not only because we can provide the customer with the information, but because it gives us the image of being on the cutting edge," Jensen says.

Bank customers pay for ATM

Americans are willing to pay a high price for banking convenience. So much so that the public shelled out almost $2 billion to banks last year in automatic teller machine (ATM) fees just for the privilege of serving themselves. That is the finding of a recent study titled "ATMs: High-Tech Cash Cows" by the Consumer Federation of America, a Washington consumer group.

All told, banks took in approximately $2.55 billion in ATM revenue last year, with an additional savings in human teller costs of $2.34 billion. The cost of operating ATM networks is estimated at $2.9 billion, leaving almost $2 billion in profit. On average, ATM users paid $43 in fees last year.

While the banking industry may be unique in charging consumers more for self-service, industry spokesmen defended the practice in the study, claiming their fees are fair and customers can avoid charges by shopping around when they open accounts. Not all banks charge such fees.

Tom Celebreeze, a spokesman for the California Bankers Association, says ATMs are a definite profit strategy for many banks. And many banks that don't charge fees for use of their own ATMs charge customers when they use a competitor's machines.

Source: San Jose Mercury News

IS culture focus of SIM group

The Society for Information Management (SIM) International is establishing a national working group and research program on "Reshaping the IS Culture." The IBM Consulting Group will cosponsor the project, which will be limited to no more than 15 companies.

An organizational meeting is planned for early July at the University of North Carolina at Chapel Hill. The working group plans to conduct a survey on the culture of high-performance information systems organizations and report its findings in March 1995. SIM International has its headquarters in Chicago.

Palmer to receive top award

Jonathan J. Palmer, the top IS executive at Barnett Banks, Inc. in Jacksonville, Fla., received the Lattanze Center's IS executive of the year award earlier this month.

As chief executive officer of the bank's IS unit, Barnett Technologies, Inc., Palmer was cited for implementing advanced systems to improve customer service. The Lattanze Center is an IS research institute based at Loyola College in Baltimore.

Willbern starts consultancy

James A. Willbern, formerly national director of KPMG Peat Marwick's Runaway Systems Management division, has established The Willbern Group, an independent consultancy in Carrollton, Texas, that will specialize in completing runaway systems projects.

Calendar

JULY 10-16

Infostructures for Health Care Reform. Portland, Maine, July 10-12 — Theme: "The Information Systems You'll Need Through the Year 2000." Contact: Inside Healthcare Computing, Oxnard, Calif. (805) 984-8500.

1994 APPC/APPN Technical Conference. Boston, July 12-15 — Keynote speaker: Ellen Hancock, IBM's senior vice president of networking solutions. Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8305.

Third Annual Summer Meeting, Forming Partnerships with Industry. Washington, July 13-14 — Contact: Tracee Jolles, The National Technology Transfer Center, Wheeling, W. Va. (304) 243-2535.

Fourth Annual National Technical Information Service (NTIS)/Japan Information Center of Science and Technology Conference. Boston, July 14-15 — Japanese scientific/technical information. Contact: NTIS, Springfield, Va. (703) 487-4819.

Understanding Document Imaging: Managing Corporate Information in the '90s. Chicago, July 14-15. Also being held in Boston, July 18-19; Washington, July 21-22; New York, Aug. 15-16; Dallas, Aug. 22-23; and San Francisco, Aug. 29-30 — The course will examine the underlying technologies, buzzwords and components of document imaging to lower costs, improve customer service, reduce data errors, eliminate lost files, reduce space requirements and minimize paper flow. Course fee: $895. Contact: Data-Tech Institute, Clifton, N.J. (201) 478-5400.

JULY 17-23

Internal Consulting in Large Organizations: The Skill of Technical Liaison. Washington, July 18-20 — Contact: Continuing Engineering Education Program, George Washington University, Washington, D.C. (202) 994-6106.

Communications Opportunities in Health Care. Washington, July 19-20 — Topics: Generating new business through health care reform, networking requirements of managed care, telemedicine, home-centered care and other health care delivery trends, automated claims processing, computerized patient records and teleradiology. Contact: TeleStrategies, Inc., McLean, Va. (703) 734-7050.

Conference for Artificial Intelligence Applications on Wall Street and Worldwide. New York, July 20-21 — Focus: "Developing and Profiting from Advanced Technologies Trading and Asset Management." Contact: IBC USA Conferences, Inc., Southboro, Mass. (508) 481-6400.

Configuration, Performance and Storage Management for Enterprise Client/Server Systems. Washington, July 20-21 — Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8305.

JULY 24-30

Systems Software Conference '94. Orlando, Fla., July 24-29 — Contact: Computer Associates International, Inc., Islandia, N.Y. (800) 925-2663.

Object World. San Francisco, July 25-29 — Contact: Rachel Winett, IDG World Expo, Framingham, Mass. (508) 820-8608.

Sixth Annual Computer Security Incident Handling Workshop. Boston, July 26-27 — The workshop targets computer security professionals who must deal with increasingly sophisticated security incidents and system vulnerabilities. Contact: Lawrence Livermore National Laboratory, Livermore, Calif. (510) 423-2455.

Highway summit to focus on opportunities

The emerging national infrastructure will be the subject of the first Information Superhighway Summit, scheduled for Sept. 26-28 in San Jose, Calif.

The summit will address network technologies forming the backbone of the national information superhighway, ways vendors and users can position themselves to take advantage of emerging opportunities and applications that consumers and businesses will require to be more productive.

The summit will be hosted by IDG World Expo Corp. and McQuillan Consulting, whose president, John M. McQuillan, will deliver a keynote address on "Technology for the Information Superhighway." Robert Metcalfe, publisher/chief executive officer of InfoWorld Publishing Co., will deliver a second keynote address on "Building the Infrastructure."

Topics include the following:

- Reviews of technologies and architectures being considered for the information superhighway.
- The role of interexchange carriers, cable companies, regional Bell operating companies and federal and state governments.
- The role of telephone networks, cable systems and the Internet as starting points for the emerging infrastructure.
- Alternative approaches to delivering voice, data and video using cable TV, copper-based telephone lines, fiber-optic cable and wireless.
- New services the infrastructure will make possible and the business opportunities they may provide.

For more information, contact Jeff Silha at IDG World Expo, Framingham, Mass., (800) 545-3976.

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BROWN: *There are times when you need to read mail*

Employers have no right to snoop through mail

BY COREY L. NELSON

Privacy is for the unemployed — that is the message employers are sending these days. The topic of electronic-mail privacy in the workplace and who retains the right to govern E-mail's content and access is highly controversial. It is surprising how many people think companies are respecting their electronic privacy when, in fact, invasive corporate monitoring is all too routine.

I am stunned that companies think employees should surrender cherished liberties and subject personal communications and electronic property to constant scrutiny and incessant examination. If the government tried something like that, everyone would be

Private, *page 137*

Companies own E-mail and can monitor it

BY BONNIE BROWN

An electronic-mail network, including messages and their contents, belongs to an employer. Therefore, the employer has the right to access E-mail messages if necessary.

But this right to access should not be used frivolously. After all, there is a certain bond of trust that must exist between all employers and employees. An employer who reads, scans or just plain snoops into messages indiscriminately would be telling its employees that this trust does not exist.

Most managers would not feel comfortable following an employee around and listening in on private, face-to-face conversations. In the same manner, it is inappro-

Public, *page 137*

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70. Mining/Construction/Petroleum/Refining/Agric
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App. Development Products ❑ Yes ❑ No

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60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/ Transportation
70. Mining/Construction/Petroleum/Refining/Agric
80. Manufacturer of Computers, Computer Related Systems or Peripherals
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PRIVATE

CONTINUED FROM PAGE 135

up in arms. Such a practice would be deemed unconstitutional.

E-mail instantaneously distributes interoffice communications discreetly, it is green (saves paper and makes telecommuting more viable), and it provides increased productivity while saving money on such applications as payroll. Why would companies want to discourage the use of such a great resource by making workers paranoid about using it?

A rigid office will produce only oppressed workers with little incentive to go that extra mile when the company needs it. Productivity does not flourish in a hostile workplace. A Big Brother attitude only squelches creativity, something on which American industry was built and on which it very much depends to compete in global markets. If a company desires contented, productive and long-term employees, it must recognize their right to privacy.

If an employer claims to have the right to monitor E-mail at its discretion (to whatever intangible degree that might be), then how long before it listens to our private calls, reads our mail or plants a microphone by the water cooler? Wireless telephones are legally required to have written notices stating that communications aren't private. Where are the E-mail privacy warnings?

Wiretapping is against the law, but sadly, there are no solid laws regarding E-mail eavesdropping. There is some movement on the legislative front: U.S. Sen. Paul Simon (D-Ill.) is drafting legislation that would require companies to tell workers that their messages might be monitored. This is a start toward getting some legal definition and protection for employee privacy.

In the meantime, do not buy into excuses that E-mail probing is necessary "to monitor productivity" or "verify honesty." Why do network accounts have passwords if not to assure users of some level of security? A company has no need to check in on things before there's any hint or complaint of system abuse. Granted, issues such as corporate spying, embezzlement and sexual/racial harassment that leave a company open to a lawsuit and vulnerable in the market are indeed serious ones, but even paper trails have historically required legal courses of investigation (court orders come to mind).

"What's next? A search of my briefcase before I can leave the office?"

COREY L. NELSON

And it's not only the suspicious people who are being watched. *Bourke v. Nissan Motor Corp.* involved a man who was dismissed for inappropriate jokes and language found in his intercepted E-mail. *Thomasson v. Bank of America* concerned a man fired when E-mail messages exposed his previous work as a stripper. In *Flannigan v. Epson America*, a woman was fired for "gross insubordination" after she reported on a fellow system administrator for monitoring messages. She knew too much.

Employers are quick to argue that they own the hardware and, therefore, retain control over its use, including the electronic message base. Ridiculous! The company also owns the desk on which the networked computer sits, but that does not give it license to rifle through the drawers or file cabinets. What's next? The use of a company pen makes a letter subject to corporate viewing? A search of my briefcase before I can leave the office? Gee, I hope my papers are in order for the guard at the gate so I'm not late for dinner.

A *Macworld* magazine survey last year found that 60% of companies that intentionally perform electronic eavesdropping conceal doing so. My advice is that if it is not something you'd leave on your desk, do not put it in E-mail. We have to remember that all E-mail is susceptible to viewing (even unintentionally) by system administrators just doing their jobs.

Technology is progressing rapidly, but the confidentiality of electronic messages has not been clearly defined, either legally or in daily application. The concept of E-mail being private property seems intuitive considering current laws protecting postal mail and phone conversations, but to date that's only an assumption without any laws to back it up. Your best defense is to find out exactly what written policy your employer has regarding E-mail privacy.

E-mail might be a privilege, but E-mail privacy is a right. ■

Nelson was owner of Testing 1, 2, 3, a computer software testing service, for eight years. She lives in Livermore, Calif.

SOUND OFF!

PUBLIC

CONTINUED FROM PAGE 135

priate to read an employee's E-mail unless there is serious reason to believe that the employee is jeopardizing the bond of trust between employer and employee.

Even in an environment based on trust, however, there are times when an employer must read an employee's E-mail. What if an employer has reason to believe that an employee is sending information detrimental to the company? Not only can harmful information be sent within the company, but with X.400 connectivity and connections to public carriers, messages can also be sent outside the company — perhaps even to competitors.

In such cases, the employer has a right and an obligation to protect itself. That may require reading an employee's E-mail.

"I feel the employer has a right and an obligation to protect itself."

BONNIE BROWN

It boils down to who owns the E-mail network. Messages are created using hardware and software the employer has purchased. Maintaining an E-mail network requires time, effort, equipment and money. The costs of hiring staff to administer the E-mail network are substantial. Employees generally create their messages during "work hours." Should an employee be allowed to use a company's resources to damage that company?

However, monitoring someone's E-mail account should never be considered a substitute for good management practices. If a manager believes that an employee is using E-mail for private discussions rather than for business communications, then that manager should review the situation with the employee. Monitoring an E-mail account should not be a knee-jerk response.

If an employer is going to retain the right to monitor E-mail, then all employees must be told as plainly as possible that their accounts may be accessed. This policy should never be a secret.

Even companies that have an open policy about E-mail monitoring cannot read *every* E-mail message sent through the network. It's just not cost-efficient. Most companies wouldn't be able to justify hiring people to read messages day after day or hiring programmers to code programs to scan message files. This is not an effective use of time and resources.

But employees should not feel they have complete privacy just because the logistics of monitoring every message is staggering. In fact, if an employee wishes to guarantee private communications via E-mail, he should turn to the many public carriers that would gladly sell him a mailbox on their network.

Sure, by purchasing his own mailbox, an employee would pick up the tab associated with his messages. But in exchange, he gets complete privacy. Messages generated by these private mailbox accounts would not be associated with the employer and, thus, would not be the employer's concern.

While there are circumstances that justify monitoring E-mail, such a decision shouldn't be made lightly. There has to be trust and respect between employer and employee. Without this trust, conducting day-to-day business would quickly become impossible. ■

Brown is a project leader at United Parcel Service, Inc. in Mahwah, N.J., and a member of the Electronic Messaging Association.

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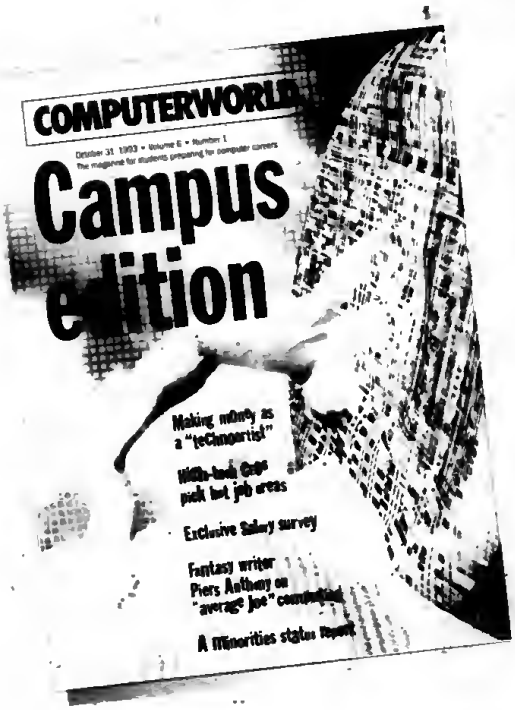

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The HIGHEST bidder

Some companies hire client/server programmers, others prefer to grow their own. Either way, there are a number of plum opportunities for experts to earn top dollar.

By Candee Wilde

"Make hay while the sun shines" could be the unofficial motto of programmers and analysts whose skills are on the cutting edge.

The rising demand for people with knowledge of client/server architectures, coupled with a short supply, allows them to demand unprecedented compensation. "You can almost name your price," says Edward Perlin, president of Edward Perlin Associates, Inc. in New York. "In many cases, it's not a question of a rational compensation policy. It's a question of paying whatever is necessary."

Developers in particular are heavily in demand in the financial sector, experts report. In fact, some East Coast brokerage houses, banks and other financial services firms are offering five-year compensation packages ranging from $150,000 to $200,000 per year, Perlin says, which include bonuses driven by profitability. "It's forcing other [companies] to start paying those salaries to stay in the game," he says.

Change will come

However, this heyday won't last forever; new technologies will come into favor. In the meantime, many information systems managers are training staffs internally as new systems are put in place. "I've been in the business a long time," says Jon Palmer, chairman and chief executive officer at Barnett Technologies, an affiliate of Barnett Bank in Jacksonville, Fla.

"THERE IS ALWAYS SOME CRITICAL SKILL IN DEMAND. TODAY IT'S CLIENT/SERVER. FIVE YEARS AGO IT WAS SOMETHING ELSE. OUR PREFERENCE IS TO DEVELOP ABILITIES IN-HOUSE RATHER THAN HIRE MERCENARIES," SAYS JON PALMER, CHAIRMAN AND CEO AT BARNETT TECHNOLOGIES.

"There is always some critical skill in demand. Our preference is to develop abilities in-house rather than hire mercenaries."

Furthermore, few IS managers say they would make a counteroffer to discourage even the most valued employee from leaving. Manny Bhuta, IS director at GAF/Building Materials Division in Wayne, N.J., voiced an opinion echoed by other IS chiefs: "I don't try to retain employees who are recruited. If someone has gotten a better offer, I never bargain."

Doing whatever it takes

Companies that opt for the quick fix, however, are willing to pay for it. Richard Wonder, national director of the IS division at Robert Half International, Inc. in New York, says stock options and pay incentives are common for newly hired client/server analysts, particularly those helping with a company's transition from legacy systems. "The transition may take from six to 18 months and the company will reward participants with bonuses tied to the project," Wonder says.

Ed Altman, now vice president of IS at Metro-Goldwyn Mayer, Inc. (MGM) in Santa Monica, Calif., recalls that when he was with Paramount Pictures Corp. two years ago, he was changing some applications from a mainframe to a client/server environment, and he paid the piper. "We got some great mainframe people in the $65- to $85-per-hour range, with 10 to 15 years' experience," Altman says. "In terms of client/server, for Sybase and system architect skills, we paid $95 to $120 per hour."

As MGM goes through a similar transition, Altman is taking a different approach. "I'm working to train and evolve in-house people and complement them with experts from outside," he says.

Whatever option companies decide to take, the high-speed evolution of technology makes it challenging for analysts and programmers to keep up, and difficult and expensive for department heads to build, develop and retrain a skilled staff. "The best people in this business make a lot more money than the best made 15 years ago — and they earn it," Palmer says. ■

Wilde is a free-lance writer in Easton, Conn.

THE SEARCH CONTINUES

Consultants and contract programmers are also benefiting from the client/server demand. In California especially, skilled programmers are generally not "enticed to switch from Company A to Company B," says Victor Janulaitis, chief executive officer at Positive Support Review in Santa Monica, Calif. Instead, he says it's a contract programming house that persuades them to change jobs.

One of Janulaitis' clients in the Los Angeles area, for example, is three months away from a client/server rollout. "Out of 30 client/server specialists, 20 are at risk of leaving," he says. And why not? If a typical programmer is being paid $36,000 to $55,000 annually, Janulaitis says, the offer of $90,000 to $100,000 per year as a contract programmer is "difficult to refuse."

—Candee Wilde

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TESTING the WATERS

As Cobol developers step gingerly into object-oriented Cobol, one expert suggests looking at the similarities it shares with traditional Cobol rather than the differences

By Sally Cusack

Dan Clarke has been training Cobol programmers in object-oriented Cobol for two years through Micro Focus, Inc.'s beta-testing program.

His first mistake was trying to teach Smalltalk as an introduction to object-oriented concepts. The goal, the object-oriented products manager says, was to train technical support staffers in a week. "We never got past the first two days. It was like trying to drink from a fire hose — too much to swallow," Clarke says.

The combination of a new language with new concepts and terminology was overwhelming. Clarke rethought his training strategy and hit on the solution: When he introduced object-oriented Cobol, he would initially focus on the similarities programmers will find between the old languages and the new. "It's really not as complex as it's made out to be," Clarke says.

While this might not quell programmers' fears of moving from procedural code to object-oriented development, a happy compromise may yet be found in object-oriented Cobol.

Under construction

Currently, Micro Focus and IBM are working together and separately to provide large systems Cobol shops with a less stressful alternative to the stringent world of pure object-oriented development. Micro Focus introduced the Object Cobol Option this spring, and IBM will reportedly unveil an object-oriented Cobol for MVS next year.

An add-on to the Micro Focus Cobol Workbench Version 3.2, the Object Cobol Option provides a complete object-oriented development and class library and enables the development of graphical user interface applications. Because it allows object and procedural code to coexist and cooperate, the Object Cobol Option lets developers migrate existing Cobol code incrementally to the object environment.

While moving programmers from a purely Cobol background to object-oriented languages can easily become traumatic, Clarke says he tells object-oriented Cobol candidates that they know much more than they think they do.

For example, if one takes a series of variables declared in Cobol to be different data types and then takes a verb and asks A to add to B, the compiler worries about performing the results.

It's a form of polymorphism, Clarke says, which is one of the features inherent in object-oriented development. "It's the same concept; it's just carried forward into objects."

Glimpsing the familiar

One of the earliest users of Micro Focus' product is Michelle Young, technical specialist at Nationwide Insurance in Columbus, Ohio. The company has been evaluating the product since March and is examining object-oriented technology to determine how it can best be leveraged at the company. Currently, there are four IBM 3090 mainframes and two Tandem Computers, Inc. machines running Cobol applications. The company also has Cobol running across DOS and Unix.

Young's first impression of object-oriented Cobol is that "it's pretty good. The calls and variables are the same, and there is some familiar syntax mixed in with stuff that is really foreign." Having worked in a Cobol environment for 10 years, Young says she cannot estimate the entire learning curve involved. However, she says she is learning to accomplish the same tasks in two different ways.

Micro Focus' goal when designing object-oriented Cobol was to make the language a fairly natural extension of Cobol, Clarke says. He estimates there are 12 to 15 new extensions to existing verbs. An advantage to the object-oriented technology is that it hides a lot of detail and is reused by adding code — not changing it, he adds.

Micro Focus isn't the only major player in the market. IBM's program is in the alpha test stage and will be available for general release by the middle of next year. In fact, Young says IBM's entry into the market will encourage other companies to join it.

Young's advice to other Cobol developers? "Don't panic," she says. Although working with a pure object-oriented language such as Smalltalk may leave a bad taste in your mouth, according to Young, "perhaps you can [program] in object-oriented Cobol and leverage off of your knowledge base."

Cindy Craine, manager of Cobol solutions at IBM's Santa Teresa development labs in California, offers the following advice for Cobol programmers considering a move to object-oriented Cobol development:

- **Remember: Object-oriented Cobol is a natural extension of the Cobol language.**
- **Start to do pieces in object-oriented constructs where you feel most comfortable.**
- **Select pieces of the application that lend themselves most readily to objects (i.e., define a customer profile as an object with billing, address and purchase history).**
- **Visualize the tangibles first, and then start coding them into objects.**
- **Mix object-oriented with procedural development to enhance comfort level.**
- **Remember: The business logic can still be written in Cobol!**

Cusack is a market analyst at The Standish Group International, Inc., a consulting firm in Dennis, Mass., that focuses on reliable enterprise computing.

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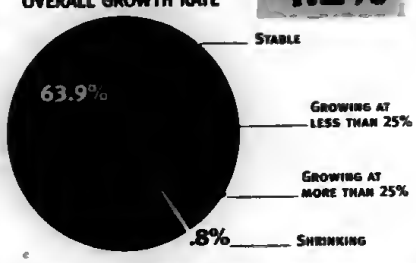

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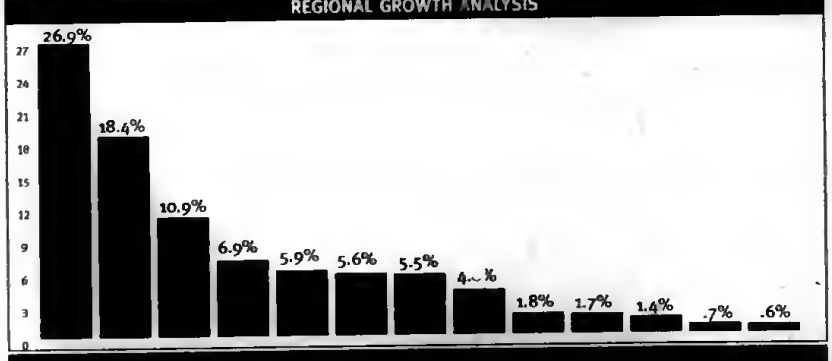

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Waiting for wireless

Most companies won't plan for Cellular Digital Packet Data until 1995, but IS managers may want to start examining the technology and its requirements while waiting for CDPD to take hold

By Julie Hart

The mobile work force isn't new. Insurance agents, salespeople and others have always taken their work on the road. What's new is an emerging wireless network technology, Cellular Digital Packet Data (CDPD), that is expected to revolutionize the mobile work environment.

The brains behind this movement is a consortium of U.S. cellular carriers, which joined forces in 1992 to establish a standard for sending data over existing cellular networks using packet data technology. The result is CDPD, a communications technology that, unlike digital solutions, works with existing analog cellular networks.

Designed to send data in short bursts during the idle time on a channel, CDPD is expected to provide a more cost-effective means of data transmission than circuit-switched technology and has unlimited application possibilities.

"It's not difficult to find a use for this technology," says Thomas Nolle, president of CIMI Corp. in Haddonfield, N.J. "CDPD is part of an effort to move technology closer to the process."

Workers in major automobile holding yards, for example, will be able to use a CDPD-enabled computer to record the exact location of each vehicle. When a dealership requests 200 two-door, blue cars, workers will be able to easily locate the vehicles.

"CDPD is in early deployment now," says Roberta Wiggins, director of wireless mobile communications at The Yankee Group in Boston. "But it will be at least two years before nationwide connectivity and coordinated billing is available."

In fact, Nolle says most companies will only start to plan for CDPD applications in 1995. "Then, it won't be until 18 to 24 months later that we'll begin to see CDPD peak," Nolle says.

Meanwhile, the CDPD consortium must resolve a number of complex issues, including the automation of cellular roaming, standardization of multivendor equipment and the creation of distribution channels, Wiggins says. "Mobile users need to be able to travel from one service area to another," she says. "Currently, it costs more to do this, and it isn't as seamless as it could be."

When users are outside their CDPD area, for example, it takes extra time for calls to be rerouted, Wiggins says. Wireless services such as Advanced Radio Data Information Services (ARDIS) and RAM Mobile Data feature automatic roaming, which cuts costs and eliminates rerouting slowdowns.

CDPD has been implemented by carriers at a speed of 19.2K bit/sec. in all current service areas. ARDIS, on the other hand, operates at 4.8K bit/sec. in most areas and 19.2K bit/sec. in limited areas. RAM Mobile Data operates at 8K bit/sec.

The downside to CDPD is that the cost may still outweigh the benefit. For example, CDPD modems could be installed in vending and lottery machines and video games. "If you had a CDPD modem inside of 1,000 vending machines, each machine could 'speak up' when it jammed or was out of stock," says Ira Brodsky, president of Datacomm Research Co. in Wilmette, Ill. "But does it make sense? You'd have to sell a lot of candy bars to pay for the modems and the carrier's monthly service charge."

"Cost is always a problem with new technology," Nolle says. "When wireless LANs came out, everyone could think of ways to use them. But they cost more than regular LANs and didn't have as much bandwidth. Let's hope CDPD does what it promises at a cost that will result in a solid [return on investment]." ■

Hart is a free-lance writer in Sunnyvale, Calif.

TECHNOLOGY AT WORK

Expected to move technology closer to the work process, CDPD may have virtually unlimited applications, analysts predict. Examples include:

- Database queries and electronic-mail access via laptops and palmtops without phone line connection.
- Access to a central database by insurance agents at an accident scene using a CDPD-enabled device.
- Use of CDPD by personal digital assistants to provide intelligent voice applications by sampling voice with data.
- Use of CDPD to disseminate bulletins, such as company functions, new products or fund warnings to corporate mobile users.
- Wireless bar-coding in manufacturing.

Source: McCaw Cellular Communications, Inc., Wireless Data Division

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Isolated islands of cellular digital packet data are available in many areas, but analysts predict it will be a solid two years before nationwide service exists.

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AirTouch Cellular	Other major markets	End of 1996
Ameritech Cellular Services	Chicago	June 1994
Ameritech Cellular Services	Other major markets	1996
Bell Atlantic Mobile	Baltimore, Washington, Pittsburgh	Available now
Atlantic Mobile	All service areas	End of 1994
GTE Mobilnet	San Francisco, San Jose, Calif., Houston	Mid-1994
GTE Mobilnet	Other major markets	1994-1995
McCaw Cellular Communications, Inc.	Dallas, Seattle, Miami, Las Vegas	Available now
Sprint Cellular Co.	New Mexico	June 1994

Source: The Yankee Group, Boston; McCaw Cellular Communications, Inc., Wireless Data Division, Kirkland, Wash.

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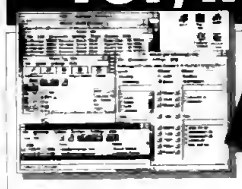

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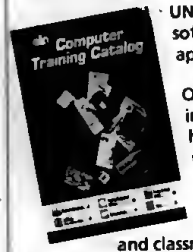

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Sealed proposals will be received by CDPA, 301 N. Lamar St., 201 Bldg, Suite 508, Jackson, MS 39201 for the following:

RFP 2886 due Friday, September 2, 1994 @ 3:30 P.M. for the acquisition of the hardware, software and services for the turnkey implementation of a remittance processing, data capture, image assisted data entry, and imaging system that will be known as the Deposit, Remittance and Data Capture system (DRDC) for the Mississippi State Tax Commission. This system will be used to front-end the State Tax Automated Revenue System (STARS). The selected DRDC vendor will be responsible for developing the interfaces between DRDC and the STARS system and will have to work with the STARS contractor to develop these interfaces. $100 Charge

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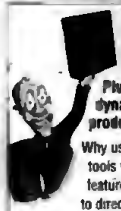

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Silicon Graphics	6.2
Interlan Inc.	5.4
Netrix Corp	5.0
Peoplesoft	3.5
Storage Technology	3.1

Dollar

Group 1 Software	1.63
Autodesk Inc.	1.38
Silicon Graphics	1.25
Software Spectrum Inc.	1.25
U S West Inc.	1.13
Peoplesoft	1.13
Storage Technology	1.00
Oracle Corp.	0.69

Losers

Percent

Lotus Development	-51.4
Quarterdeck Office Sys.	-25.4
Hogan Systems Inc.	-25.3
Filenet Corp.	-55.3
Integrated Silicon Systems (L)	-22.5
Cobol Corp	-22.5
Magic Software Enterprises	21.7
Gateway 2000 Inc.	23.3

Dollar

Lotus Development	-16.25
BMC Software Inc.	-7.88
Filenet Corp.	-5.38
Cobol Corp.	-5.00
Newbridge Networks Corp. (L)	-4.88
Sybase Inc.	-4.50
Integrated Silicon Systems (L)	-4.38
Scientific Atlanta Inc.	-4.55

Lotus Development Corp.'s poor earnings announcement led the way to another tough week for tech stocks. The services and reseller sector, led by Software Spectrum, Inc., fared best.

[redacted]

Newbridge looks to regain lost momentum, boost profit

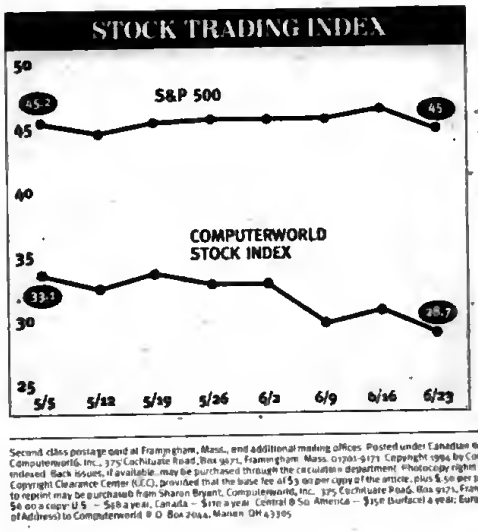
Newbridge Networks Corp. (NNXCF) was one of the industry's top stock performers in 1992 and 1993, but the communications gear company has suffered a dramatic reversal of fortune since last October. Newbridge set a new 52-week low last week.

Newbridge supplies multiplexers, terminal adapters and other network equipment to such companies as NynexCorp. and MCI Communications Corp. According to a report from Smith Barney Shearson, Inc., Newbridge stands a good chance of turning its fortunes around again on the stock market.

One reason is the company's excellent gross margins. In the most recent quarter, the company reported gross margins of just under 70%, holding steady from the previous sequential quarter. Excellent manufacturing efficiency has allowed Newbridge to maintain high margins, according to the Smith Barney report. Newbridge beat analysts' expectations for revenue in the quarter, ringing up more than $164 million in sales.

Smith Barney analyst Therese Murphy issued a Buy rating for Newbridge shares.

—Derek Slater



Exch	52-Week Range			June 24 Wk Net	Wk Pct	1994	Change	Change
Communications and Network Services								Off 6.11%
OTC	63.75	19.63	3COM Corp	45.50	0.50		-1.1	
NYS	45.56	36.25	AMERITECH Corp	39.38	-1.88		-4.5	
NYS	45.00	49.50	AT&T	54.13	-2.50		-4.4	
OTC	26.38	13.00	Banyan Systems Inc	18.25	-0.25		1.7	
NYS	69.13	49.00	Bell Atlantic Corp	55.00	-0.38		-0.9	
NYS	63.88	53.00	BellSouth Corp	60.00	1.11		1.9	
NYS	23.38	7.38	Bolt, Beranek & Newman	11.50	1.00		8.0	
OTC	15.75	9.50	Brooktrout Technology	10.75	-1.25		10.4	
NYS	132.50	82.63	Cabletron Systems	88.88	-0.38		-0.4	
OTC	43.00	17.75	Centigram Communications	19.75	2.00		9.2	
OTC	60.25	36.00	Chipcom Corp* (L)	36.63	-0.63		1.8	
OTC	40.75	20.13	Cisco Systems Inc.	22.38	2.00		8.2	
OTC	18.38	8.75	Commission Labs Inc	50.38	0.88		7.8	
OTC	12.38	6.50	Computer Network Tech.	7.00	0.06		0.9	
OTC	35.75	8.50	CrossComm	9.25	0.25		2.8	
OTC	3.38	1.50	Data Switch Corp	2.53	-0.61		13.8	
OTC	36.50	18.63	DSC Communications	18.63	2.06		10.0	
OTC	3.50	0.50	Gandalf Technologies Inc	0.63	0.00		0.0	
NYS	17.63	8.00	General Datacomm Inds	14.13	2.13		13.1	
NYS	39.88	29.50	GTE Corp	30.25	1.50		-4.7	
NYS	95.97	76.97	ITT Corp	82.75	-2.75		-3.2	
OTC	29.00	51.38	MCI Communications Corp	22.38	1.75		5.3	
OTC	7.75	1.50	Microcom Inc	5.88	-0.25		-4.1	
OTC	21.38	11.50	Netmanage Inc.	13.25	-0.38		2.8	
OTC	7.75	3.50	Netrix Corp	5.75	0.25		5.0	
OTC*	10.25	3.75	Network Computing Devices (L)	4.00	-0.25		5.9	
NYS	13.13	6.63	Network Equipment Tech	8.13	-0.25		-1.0	
OTC	23.38	9.75	Network General	14.63	3.25		18.2	
OTC	9.88	6.38	Network Systems Corp	6.63	-0.25		-3.6	
OTC	23.88	10.38	Newbridge Networks Corp. (L)	10.38	-4.88		-15.8	
NYS	33.75	21.38	Northern Telecom Ltd.	28.55	-2.25		-7.6	
OTC	58.00	14.63	Novell Inc.	16.63	-1.13		7.1	
NYS	48.88	33.25	Nynex Corp.	36.00	-2.15		5.6	
OTC	30.00	16.50	Octel Communications Corp. (L)	17.75	-1.25		6.9	
OTC	18.25	9.00	Optical Data Systems Inc	13.00	1.25		8.8	
OTC	7.50	5.50	Pearl Data Comm Networks (L)	3.38	-0.31		3.4	
OTC	22.75	10.00	Picturetel Corp.	12.25	1.94		33.7	
OTC	8.25	3.63	Proteon Inc	4.13	-0.75		15.4	
OTC	14.38	5.88	Racotek Inc	6.75	-0.75		3.6	
NYS	38.88	54.88	Scientific Atlanta Inc	33.38	-4.75		11.1	
NYS	47.00	36.75	Southwestern Bell Corp	42.38	-0.75		-1.2	
NYS	40.25	31.38	Sprint Corp	34.25	1.50		-4.2	
OTC	26.75	13.88	Standard Microsystems Corp (L)	13.88	3.88		31.9	
OTC	23.75	11.38	Stratacom Inc.	20.75	3.00		-4.6	
OTC	40.75	14.38	Sydoptics Communications (L)	14.38	-1.56		9.7	
OTC	15.75	7.88	Telebit Corp.	5.66	-0.56		-9.4	
OTC	46.00	22.25	US Robotics	26.13	-0.63		-2.3	
NYS	50.75	38.25	US West Inc	42.88	1.13		2.7	
OTC	43.88	19.38	Wellfleet Communications	23.25	2.38		9.6	
OTC	28.25	14.00	Xircom	14.00	-2.00		12.5	
OTC	30.00	12.50	Xylan Inc. (L)	12.75	1.00		7.3	
PCs and Workstations								Off 4.75%
OTC	7.50	2.63	Advanced Logic Research	5.25	-0.11		-2.3	
OTC	45.25	22.00	Apple Computer Inc.	26.13	0.03		0.0	
OTC	33.00	13.00	AST Research Inc. (L)	13.00	-1.25		-8.8	
NYS	39.88	14.38	Compaq Computer Corp	32.00	-1.50		-4.5	
OTC	50.75	19.50	Dell Computer Corp	24.63	-1.13		-4.4	
OTC	25.00	10.75	Gateway 2000 Inc.	10.75	-2.88		-21.1	
NYS	93.63	66.38	Hewlett Packard Co	75.88	5.25		2.9	
NYS	26.88	16.00	Silicon Graphics	21.38	1.75		6.2	
OTC	31.38	18.50	Sun Microsystems Inc. (L)	18.50	-2.00		9.0	
NYS	50.75	28.13	Tandy Corp	34.63	1.75		-4.8	
OTC	5.13*	2.38	Zeos International Ltd.	2.50	0.00		0.0	
Large Systems								Off 4.45%
ASE	7.88	4.38	Amdahl Corp	5.75	-0.50		8.0	
NYS	7.63	3.63	Convex Computer	5.50	-0.13		2.3	
OTC	4.50	0.50	Cray Computer	3.00	-0.00		-8.6	
NYS	33.75	10.13	Cray Research Inc	22.50	-0.63		2.7	
NYS	10.75	6.63	Data General Corp	7.15	-0.38		-5.0	
NYS	43.13	18.75	Digital Equipment Corp	19.88	0.13		0.6	
NYS	52.25	36.38	Harris Corp	45.63	-1.38		2.9	
NYS	65.00	60.63	IBM	60.75	-1.88		-3.0	
OTC	18.75	8.13	Mayframe	8.13	1.65		16.7	
OTC	26.00	4.38	Parallan Computer (L)	4.38	-0.63		12.5	
OTC	23.75	5.88	Pyramid Technology (L)	5.88	1.38		-19.0	
OTC	20.00	13.15	Sequent Computer Sys.	13.25	1.63		-10.9	
OTC	6.84	1.75	Sequoia Systems Inc	3.38	0.00		0.0	
NYS	33.55	20.25	Stratus Computer Inc.	28.25	1.61		-5.4	
NYS	16.38	8.38	Tandem Computers Inc	11.41	-0.75		-6.1	
OTC	30.00	9.75	Tolerant Systems	11.13	1.88		-16.6	
NYS	16.50	8.88	Unisys Corp (L)	8.88	-0.15		-1.6	
Software								Off 7.26%
OTC	34.50	16.25	Adobe Systems Inc.	26.13	-0.38		1.4	
OTC	34.50	13.50	Aldus Corp.	55.06	-0.31		3.2	
OTC	8.38	6.50	American Software Inc.	6.75	-0.38		-9.5	
OTC	15.75	6.75	Ask Computer Systems	13.25	0.25		1.9	
OTC	61.25	37.00	Autodesk Inc.	49.38	1.38		2.8	
OTC	6.50	5.00	Bachman Info Systems	5.13	0.13		6.3	
OTC	34.00	20.50	BGS Systems Inc	24.50	-0.50		2.0	
OTC	71.00	42.25	BMC Software Inc	42.25	7.88		15.7	
OTC	30.75	22.50	Boole & Babbage	27.50	-5.38		-8.3	
OTC	23.25	8.50	Borland Int'l. Inc	8.75	-0.19		-2.1	
OTC	25.00	10.00	Brock Control Systems Inc.	10.75	-2.25		-17.7	
OTC	4.63	2.38	CE Software	2.75	-0.38		12.0	
ASE	38.38	6.25	Cheyenne Software Inc. (L)	7.63	-0.38		-4.7	
OTC	14.25	7.00	Cognos Inc	11.63	-0.25		2.3	
NYS	44.88	22.00	Computer Associates	38.75	-1.00		2.5	
NYS	5.38	2.13	Computervision Corp	3.25	0.00		0.0	
OTC	48.25	21.00	Compuware Corp	40.25	-2.56		-5.8	
OTC	14.00	5.75	Compuhap Inc	12.25	-0.13		1.0	
OTC	25.00	7.63	Cobol Corp	17.25	5.00		-25.5	
OTC	7.75	3.38	Easel Corp	4.13	-0.75		15.6	
OTC	29.75	11.25	Filenet Corp	16.75	5.50		25.1	
OTC	25.00	4.00	4th Dimension	6.00	-0.75		15.8	
OTC	32.50	5.25	Frame Technology	9.25	-1.25		-11.9	
OTC	13.00	7.00	Group 1 Software	8.65	1.63		23.2	
OTC	11.75	9.75	Gupta	11.25	0.61		-5.5	
OTC	12.00	7.50	Hogan Systems Inc	7.94	-2.69		-25.3	
OTC	58.50	16.00	IMRS	23.63	-0.88		-3.6	
OTC	44.75	35.50	Information Resources	14.13	1.13		-7.4	
OTC	27.25	14.25	Informix Corp	16.50	1.00		-6.5	
OTC	12.38	9.50	Intergraph Corp	9.38	0.13		1.4	
OTC	8.88	4.88	Interleaf Inc	6.06	0.31		5.4	
OTC	15.38	4.75	Intersolv Inc.	9.38	-2.00		-17.6	
OTC	50.00	27.00	Intuit Inc	51.50	-5.00		-8.0	
OTC	18.75	7.55	Knowledgeware Inc.	7.25	1.25		-14.7	

Exch	52-Week Range			June 24 Wk Net	Wk Pct	1994	Change	Change
OTC	57.00	15.50	Lotus Corp.	25.25	-3.25		-11.3	
OTC	86.50	30.25	Lotus Development	35.50	38.75		-51.4	
OTC	18.50	6.75	Magic Software Enterprises (L)	8.75	1.88		21.7	
OTC	38.50	8.00	Mathsoft Group Inc	7.50	1.00		31.0	
OTC	10.00	3.63	Mathsoft	5.25	-0.50		13.8	
OTC	11.25	6.38	McAfee Associates	7.25	-0.50		-6.5	
OTC	17.25	8.38	Mentor Graphics	10.38	1.00		-8.8	
OTC	32.13	11.50	Micro Focus	15.38	-2.38		13.4	
OTC	11.63	4.75	Microgrammer	6.50	-0.25		3.7	
OTC	50.65	35.19	Microsoft Corp.	50.13	1.11		-5.9	
OTC	38.25	21.19	Oracle Corp	32.13	0.69		1.9	
OTC	44.75	23.38	Parametric Technology (L)	31.38	-5.13		-11.8	
OTC	24.50	14.25	Parkplace Systems Inc. (L)	14.50	-2.38		-14.7	
OTC	41.38	24.00	Peoplesoft	31.05	3.31		3.5	
OTC	6.75	1.50	Phoenix Technologies	4.75	-0.25		-1.0	
OTC	69.50	26.25	Powersoft	60.25	3.50		5.0	
OTC	39.75	3.50	Platinum Software	5.94	0.00		0.0	
OTC	16.75	7.75	Platinum Technology	12.75	-0.88		-6.7	
OTC	60.25	29.00	Progress Software Corp (L)	29.44	1.81		5.8	
OTC	4.33	1.94	Quarterdeck Office Sys.	2.75	-0.94		-35.4	
OTC	32.00	13.00	Rainbow Technologies Inc.	13.50	0.25		1.9	
OTC	11.38	4.00	Rasterops	4.50	-0.38		-7.7	
OTC	14.50	3.44	Ross Systems (L)	3.44	-0.69		-16.7	
OTC	28.75	3.63	Saphire Intl. Corp. N.V. (L)	3.75	-0.50		-11.8	
OTC	14.63	9.75	Software International Inc.	12.94	-0.06		0.5	
OTC	8.63	3.75	Software Publishing Corp	4.38	-0.56		-11.4	
OTC	13.75	5.00	State of the Art	5.88	0.15		2.2	
NYS	35.63	18.50	Sterling Software Inc.	23.50	2.50		-7.6	
OTC	21.63	9.11	Strategic Dynamics Research	10.00	-0.63		-5.9	
OTC	57.00	25.75	Sybase Inc	46.75	-4.50		-8.8	
OTC	20.50	10.63	Symantec Corp. (L)	10.81	-3.15		-9.8	
OTC	52.75	51.75	SynOpsys	15.50	-1.75		-6.7	
OTC	24.25	11.75	System Software Assoc.	15.63	-0.50		3.5	
OTC	4.75	5.88	Tenzec Corp	4.00	-0.13		3.8	
OTC	30.00	16.75	Visionics Systems (L)	15.75	1.25		7.4	
OTC	11.25	5.50	Walker Interactive Systems	8.25	-1.00		10.8	
OTC	60.00	19.00	Wall Data Inc	36.75	-1.75		-3.3	
Semiconductors								Off 5.25%
NYS	32.75	16.75	Advanced Micro Devices	24.38	1.50		5.8	
NYS	31.15	19.13	Analog Devices Inc	27.25	-1.38		-4.8	
OTC	29.63	10.94	Atmel Corp	14.13	1.38		-5.4	
OTC	7.30	3.38	Chips and Technologies	4.00	-0.13		-3.0	
OTC	44.63	15.75	Cirrus Logic	28.63	1.88		-6.3	
NYS	19.88	11.25	Cypress Semiconductor Corp.	16.38	1.25		7.1	
NYS	20.13	13.00	Dallas Semiconductor	18.25	-0.50		-2.7	
OTC	27.75	15.38	Integrated Silicon Systems (L)	15.50	-4.50		-22.5	
OTC	74.50	49.25	Intel Corp.	56.38	1.00		-1.7	
NYS	26.38	13.00	LSI Logic Corp	23.63	-0.13		0.5	
OTC	26.75	15.25	Lattice Semiconductor	18.11	-0.38		2.0	
NYS	39.91	24.63	Micron Technology	33.00	-0.88		2.6	
NYS	54.88	43.25	Motorola Inc.	45.25	1.88		-4.0	
NYS	25.00	16.38	National Semiconductor	17.65	-1.00		-5.6	
OTC	30.13	6.50	Sierra Semiconductor	7.75	-0.88		-30.1	
NYS	89.50	55.75	Texas Instruments	75.50	-2.50		-3.2	
OTC	18.88	8.88	VLSI Technology	13.15	-0.75		-5.4	
OTC	34.38	3.38	Weitek	4.00	0.00		0.0	
ASE	20.38	3.63	Western Digital Corp	12.25	-0.38		5.0	
OTC	59.75	36.00	Zilog	35.00	-1.50		-4.1	
OTC	80.75	23.75	Zilog Inc.	30.63	3.88		11.2	
Peripherals and Subsystems								Off 5.84%
OTC	30.50	15.50	American Power Conversion (L)	15.50	1.75		10.1	
OTC	24.75	17.25	Banctec Inc.	19.25	-2.13		9.8	
OTC	7.75	3.25	Cambex Corp	4.75	-0.38		-7.5	
ASE	7.38	2.63	Cognitronics Corp	2.65	-0.38		15.5	
NYS	20.50	8.00	Conner Peripherals	15.38	-0.63		-4.8	
OTC	19.63	8.75	Creative Technologies Inc	17.63	0.00		0.0	
OTC	17.75	4.75	Data Race Inc	5.75	-0.75		-11.9	
ASE	30.75	4.15	Dataram Corp	4.19	-0.06		-1.0	
NYS	23.00	10.13	EMC Corp.	13.25	-1.25		-8.6	
OTC	8.25	3.13	Emulex Corp	7.00	0.13		1.8	
OTC	21.00	16.55	Evans & Sutherland	16.50	1.00		-6.5	
OTC	22.50	7.50	Exabyte	14.38	-1.38		-8.7	
OTC	34.00	5.13	Intelligent Info Systems (L)	5.38	-0.38		-6.5	
OTC	4.38	2.00	Iomega Corp	2.38	-0.13		-5.0	
OTC	9.75	5.75	IPI Systems Inc. (L)	6.11	-0.38		-6.1	
OTC	29.50	13.75	Komag Inc	18.13	-0.63		-3.3	
OTC	8.63	4.38	Maxtor Corp	4.81	-0.81		30.4	
OTC	8.75	4.88	Microplis Corp	5.63	-0.13		2.2	
OTC	25.50	10.00	Miracle Technology	13.75	2.25		14.1	
OTC	9.75	6.25	Printronix Inc	6.63	-0.33		1.8	
NYS	13.75	7.25	QMS Inc.	7.25	-0.38		-4.9	
OTC	20.25	9.38	Quantum Corp	15.13	1.25		8.3	
OTC	9.13	3.61	Radius Inc.	4.50	0.00		0.0	
NYS	17.75	8.38	Reconditioned Intl.	8.38	-0.63		-6.9	
OTC	6.88	3.63	Reach Inc.	5.75	-0.50		-8.0	
OTC	20.75	14.88	Seagate Technology	19.88	-1.75		-8.1	
NYS	41.63	23.75	Storage Technology	33.25	1.00		3.1	
NYS	53.38	51.38	Tektronix Inc.	20.88	0.38		1.8	
NYS	104.88	69.88	Xerox Corp	88.00	2.00		-2.0	
Services								Off 4.44%
OTC	25.50	14.88*	American Mgmt Systems (H)	23.50	1.25		5.1	
NYS	4.25	2.38	Arbitron Inc	3.13	0.00		0.0	
OTC	23.50	14.50	Analysts Int'l.	15.75	-1.75		-8.4	
NYS	56.88	47.00	Auto Data Processing	52.88	-3.00		1.8	
OTC	18.23	8.75	Cambridge Tech Partners	15.00	-1.38		-8.4	
NYS	35.35	14.00	Cerplan Corp.	24.25	-0.50		5.0	
NYS	24.25	14.00	Comdisco Inc.	18.75	-1.38		-6.8	
OTC	15.50	4.84	Computer Horizons	8.63	-0.38		-4.2	
NYS	44.00	26.22	Computer Sciences	61.38	1.63		3.8	
NYS	8.75	6.00	Computer Task Group (H)	8.38	-0.63		-6.8	
NYS	34.75	8.63	CompuSA Inc. (L)	8.03	-0.38		-4.2	
OTC	13.50	7.25	Control Data Systems Inc	9.50	-0.63		-6.2	
OTC	11.00	4.63	Egghead Discount Software	7.25	0.13		1.8	
NYS	38.00	26.00	General Motors E (EDS)	33.63	1.38		-4.1	
OTC	22.75	7.50	Inacom Corp	8.00	-0.25		3.0	
OTC	28.00	15.63	Intelligent Electronics	16.40	1.88		-10.2	
OTC	22.38	8.00	Mecasi	8.50	-5.35		-11.7	
OTC	32.38	6.66	Microtec Inc.	10.25	2.50		-17.0	
OTC	40.50	26.00	Parcha	29.75	-1.75		-5.6	
NYS	50.75	21.63	Policy Management Sys	30.88	-5.38		-9.0	
NYS	25.50	18.00	Reynolds and Reynolds	21.75	-0.88		3.6	
OTC	58.50	15.25	SEI Corp	19.00	0.00		0.0	
OTC	29.38	17.50	Shared Medical Systems	23.50	1.75		-6.9	
OTC	13.00	5.61	SHL Systemhouse	6.25	-0.38		5.7	
OTC	30.75	9.75	Software Spectrum Inc.	15.50	1.25		15.2	
OTC	42.75	29.75	Sungard Data Systems	35.25	-1.25		3.6	

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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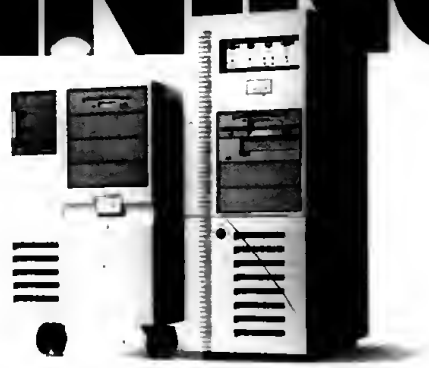

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Sun planets eclipsed

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Some large organizations avoided any collision with the planets, by virtue of the sheer volume of their Sun orders. "We're such a large account for them that we have a sales representative assigned to us that handles all that," said Bill Niemi, director of distributed systems at Fidelity Investments, Inc. in Boston.

SunSoft President Ed Zander: *'... we're going to operate under one unified sales, service and support organization'*

The hardware business and mainstay of Sun — Sun Microsystems Computer Corp. — will be unaffected by SunSoft's reorganization. Sources said the direct-order unit, SunExpress, will also be untouched by the change. Sun did not say whether job cuts would be part of the reorganization.

Listening to users

Users said the eclipse of the planet companies shows that SunSoft is responding to long-standing complaints about finger-pointing and telephone round-robins among the business units, which supplied various pieces of software needed to complete a Sun systems installation.

The planetary problem also slowed Sun's move from a technical workstation company to an enterprise player, analysts said. That became more critical as profit margins narrowed for workstations, which still account for the bulk of Sun's $4.3 billion in sales.

"The planets were starting to go into their own orbits," said Rikki Kirzner, a principal analyst at Dataquest, Inc. in San Jose, Calif. "The planets are being reminded where the Sun is."

Mike Rembis, vice president of the Sun User Group, Inc., said last week that in the past, having one Sun sales representative assigned to an account did not necessarily remove the need to call various planet sales offices directly. He recalled one search for two missing technical manuals that took more than six weeks.

"From my point of view, it's still Sun," he said. "I want to talk to one person, and it's up to him to figure out which planet to talk to."

"Ordering was always easy because you always had your same salesman," said Rembis, who is a network manager at the Ericsson GE Mobile Communications division in Cypress, Calif. "But if something went wrong, I didn't know who to call, and neither did they." Rembis' site, which designs switching equipment, has 150 Sun workstations and 15 Sun servers.

Absorbing the planets

The four business units had been part of Sun Technology Enterprises (STE) when STE merged with SunSoft in February, but they retained their separate identities in the first step of the reorganization. Those units included SunConnect for networking products, SunPics for imaging products, SunPro for development products and SunSelect for PC connectivity products.

As SunSoft absorbs the business units, it will create five internal business groups for product development, which will focus on a range of products (see story below).

The Solaris unit will support the Sun SPARC, Intel Corp. and IBM/Apple Computer, Inc./Motorola, Inc. PowerPC hardware architectures, Zander said.

Divvying up the business

SunSoft's internal business units will divide product development responsibilities as follows:

- Solaris operating system development.
- Networking products, including wide-area network and LAN software, and IBM connectivity products.
- Enterprise management, including network management and SunNet Manager, systems administration tools, high-availability software and backup and restore utilities.
- Development products, including compilers, development tools and SunPro products.
- PC application environment products, including the Wabi Windows-on-Unix software package from SunSelect, Macintosh connectivity products and other desktop software.

3Com breaks into router high end

By Stephen P. Klett Jr.

■ 3Com Corp. will plug a major gap in its router lineup this week when it announces multiprocessing support for its NetBuilder II router family.

Analysts said the move positions NetBuilder against high-end boxes from rivals Cisco Systems, Inc. and Wellfleet Communications, Inc.

In the fourth quarter, 3Com will ship add-in cards for the NetBuilder chassis that include an on-board processor for route caching. By separating this function from the chassis' host processor, the cards will scale NetBuilder II's performance from roughly 70,000 packet/sec. to more than 200,000 packet/sec., 3Com said.

This performance boost will enable customers to use NetBuilder routers for high-end applications such as collapsed backbones — the stomping ground of Cisco and Wellfleet.

3Com's high-end offering lags behind Cisco's and Wellfleet's platforms — the Cisco 7000 and Backbone Node, respectively — by more than a year. While it may be behind in terms of market share, 3Com could make up ground in a hurry, analysts said.

Backward-compatible

"It's rare in the router industry to find card-level compatibility," said Valentin Sribar, director of global network strategies at Meta Group, Inc. in Reston, Va. "You get this across the majority of 3Com's product line, which is very important from an investment protection standpoint."

Wellfleet and Cisco each have a different low-, mid- and high-end platform with completely different architectures. This often forces users to scrap their existing equipment and move to a higher level of performance.

NASA Goddard Space Flight Center in Greenbelt, Md., for example, currently uses a mix of NetBuilder II routers for low- and midrange applications. The center uses Cisco AGS+ routers primarily at the high end but has been slow to move to Cisco's 7000 platform because it is not backward-compatible.

While it will continue to use both Cisco and 3Com routers, the center may evaluate the multiprocessing version of NetBuilder for possible use in areas it has traditionally relied on Cisco for, said Tom Maufer, a senior systems engineer.

The first multiprocessing module scheduled to ship is a six-port Ethernet card, due in the fourth quarter for $7,995.

Oracle

CONTINUED FROM PAGE 1

on low-end hardware "isn't terribly aggressive" compared with Microsoft Corp.'s estimated $150 per-user price for SQL Server, Shattuck noted.

It is unclear whether Oracle plans to extend per-user pricing to its so-called Workgroup Server database versions for Microsoft's Windows NT, Novell, Inc.'s NetWare and IBM's OS/2, which are the products that compete directly with Microsoft's SQL Server.

Stripping fees

Further, Oracle is also expected to strip away at least some of the administrative fees it has charged users who move applications from one platform to another, Hagan said.

Previously, if a user wanted to downsize an application from an IBM mainframe to a Sun Microsystems, Inc. Solaris server, for example, Oracle would charge reconfiguration and other fees that could sometimes run more than 40% of the original license price, explained Matt Reagan, head of a Digital Equipment Corp. special interest group within the International Oracle Users Group.

"I don't mind paying for the privilege of" changing platforms and moving users, Reagan said. "What I do mind is paying such a huge chunk for doing that."

Oracle plans to heed that call by issuing only a "nominal" charge for new disks and documentation, Hagan said. However, he declined to specify the new fee.

Strict user-based fees could mean less expensive database software for many Oracle users.

For example, an eight-user license for Oracle on a Digital Alpha server costs $19,000, according to Reagan. That same license for eight concurrent users would be priced at $9,600 under Oracle's new scheme.

"Wow! I can live with that," Reagan said.

Users buying Oracle's latest version — Release 7.1 — will be the first to experience the simpler pricing scheme. Unveiled last week, Release 7.1 sports what Oracle has dubbed a "parallel-everything" architecture and includes features designed to split up several routine database tasks among multiple processors, such as indexing, query, loading and backup.

But such a parallel universe may be out of reach for some users until prices on multi-CPU hardware come down, Reagan noted.

Resolving update conflicts

Oracle also unveiled full-fledged replication capabilities that expand on its "snapshot" duplication feature. Release 7.1 includes the ability to resolve conflicts when two or more sites try to write to or update the same data, Oracle said. Comparable products from Sybase, Inc. do not have such a conflict resolution feature, but Ingres/Replicator, from The ASK Group, Inc., does.

Oracle's new prices

Oracle splits the hardware world into two categories

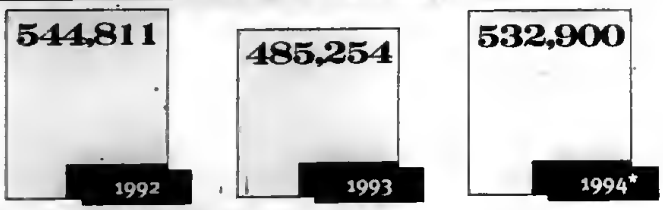
	Sample boxes	Database starting price*
Low-end	• Intel-based PCs • Small Unix workstations	$5,440
High-end	• Unix servers • Symmetrical multiprocessors • Massively parallel machines	$9,600

*For a minimum eight-user license

INDUSTRY PULSE: Midrange Systems

COMPUTER INTELLIGENCE/INFOCORP DEFINES MIDRANGE AS THOSE SYSTEMS COSTING BETWEEN $25,000 AND $700,000

Worldwide unit shipments



Source: Dataquest, Inc., San Jose, Calif.

Top 5 midrange vendors based on user expenditures for new systems and software

	1991	1992	1993	1994*
IBM	$8.7B	$8.3B	$10.3B	$9.7B
Hewlett-Packard	$4.5B	$4.1B	$5.7B	$6B
Digital	$5.6B	$5.1B	$4.7B	$4B
Sun	$1.2B	$1.4B	$2.4B	$2.6B
AT&T	$1.2B	$1.4B	$1.7B	$1B

Source: Computer Intelligence/InfoCorp, La Jolla, Calif.

Worldwide end-user expenditures

Source: Computer Intelligence/InfoCorp, La Jolla, Calif.

*Projected

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Inside Lines

The latest from DECTV

At the Client/Server Database show in Boston this week, Digital and Oracle are expected to brief the press on their forthcoming database clusters, which are expected in July. The clusters will use Oracle 7.1 parallel server technology on high-end Alpha systems running, most likely, OSF/1. Meanwhile, sources said layoffs at Digital are accelerating and may well exceed the target of 7,000 during this fiscal quarter. Half of the Paris office was wiped out, a source close to the company said, and Denver and Albuquerque, N.M., were hit hard. Rumors continue to swirl around the sale of the storage business unit, with Seagate named as top suitor.

Shell-shocked

It appears IBM's Personal Software Products group will not ship a version of the Workplace Shell for its PC-DOS line of operating systems until next year. The scaled-down version of the Workplace Shell for DOS, the full-blown version of which is the graphical front end to OS/2, was expected to be delivered in the first half of this year. Sources say the delay has nothing to do with technical problems but everything to do with marketing and positioning concerns relative to the company's other operating systems.

Motorola reveals ardor for ARDIS

Motorola will announce in the next week or two that it has purchased IBM's share of the ARDIS network for $100 million, according to industry sources. Motorola will now have complete ownership of ARDIS. The sources expect Motorola to target the antiquated network for an upgrade from 4.8K bit/sec. to 19.2K bit/sec. service (only a few ARDIS cities have 19.2K bit/sec. now). Motorola may eventually resell it to a wireless player.

Some of the prices weren't right

IBM this week is expected to change the AS/400's new user-based software pricing structure to soften the blow of some price increases that would have hit customers with large numbers of users on their systems. When it announced the user-based pricing for the OS/400 operating system [CW, May 9], IBM said increases would be mitigated by lower hardware costs and a reduction in the number of OS/400 pricing tiers.

Uh, about that install . . .

Voice recognition vendor Kurzweil Applied Intelligence was talking quickly last week, calling about a hundred or so early recipients and reviewers of its Kurzweil Voice for Windows product and warning them not to install the product. Kurzweil said a destructive virus had been detected in one of the installation disks.

Money changes everything

This week's settlement between Microsoft and Stac Electronics, which involved Microsoft's taking an equity stake in its former nemesis, was something of an about-face for the software giant. Gary Clow, Stac's chairman and CEO, has done an about-face as well. Last month, Microsoft Chairman Bill Gates walked out of a TV interview with CBS anchorwoman Connie Chung when she repeated Clow's statements that competing with Microsoft was like being in a "knife fight." Clow's new stance is much more conciliatory. He said those earlier statements were not personal and added he has a "high-degree of respect" for Microsoft.

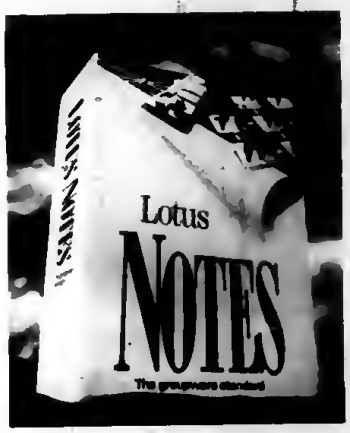
Philippe Kahn may be feeling lonely these days. A recent limited edition of Borland's Sidekick for Windows includes a disk labeled "Philippe's Personal Rolodex." Jeff Henning, an analyst at BIS Strategic Decisions, found his own name in it as well as that of another BIS analyst. The curious thing is, neither of them has ever spoken to Kahn. "I seriously doubt I'm in Philippe's personal Rolodex, but I guess I'm willing to be his friend," Henning said. Whatta guy. To get friendly with Computerworld *about news items or tips, call our 24-hour voicemail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Marylran Johnson can be reached by phone at (508) 820-8179, via the Internet at mjohnson@cw.com or through MCI Mail at 590-8017.*

LOTUS NOTES HAILED AS A POWERFUL WEAPON IN THE DRUG WARS.

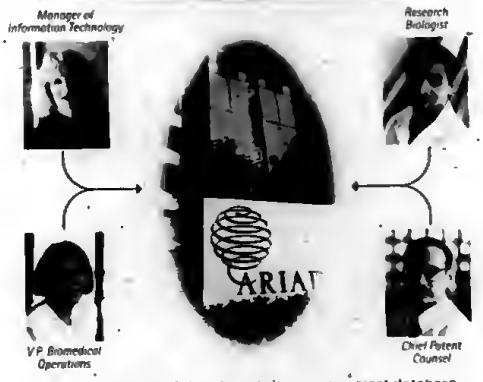
Today the pharmaceutical/biotechnology industry is an intensely competitive business. To gain an advantage, a young and fast growing company called ARIAD Pharmaceuticals has structured its organization around Lotus Notes,* the industry standard in groupware.

In the biotech business, being first is everything. Being first in scientific discovery means being first to the patent office which means being first to protect your discovery.

When ARIAD Pharmaceuticals started setting up their business and scientific systems back in 1992, they chose to make Lotus Notes the foundation. They felt that collaboration between scientists and management was essential to accelerating the drug discovery and development process. With Notes, every scientist and manager can always have the most current findings on each project, with up-to-the-minute updates on critical issues. Easily accessing the collective knowledge and expertise of other scientists from different fields, all team members can contribute to the progress of the team, wherever they are.



NOTES FROM THE FIELD



ARIAD's *Notes administrator* sets up a new project database. *Scientists* and *managers*, working on-site and remotely, share research results, ideas and progress reports in real time. With everyone working together concurrently, ARIAD's *patent attorney* monitors the project, compounds new ideas, to make informed decisions on protecting ARIAD's inventions. Then he uses the Notes database to get the information for quickly drafting patent applications.

Scientists traveling to labs and conferences around the world stay current and actively participate using Notes and their Apple® PowerBooks™ over an OS/2 server.

Naturally, in such a highly competitive field, the sophisticated security available with Notes* is a critical feature.

Now the whole company uses Lotus Notes, over 100 users in all. Databases range from the project management of the latest new drug compounds being developed and tested, to the corporate calendar and employee handbook (which is instantly updatable and universally available to all employees).

Because all the project and product development information is already in a Notes database, it's easy for ARIAD's patent attorney to stay on top of advances, discoveries and other timely developments from ARIAD's scientific community. This improved flow of information makes for better interaction with the patent office and FDA. This means better results in the marketplace.

At ARIAD, almost all business takes place on Notes databases.

And that's a big strategic advantage.

To learn what Lotus Notes can do for your company call **1-800-828-7086, ext. 9872*** for our free "Discover Notes" video.

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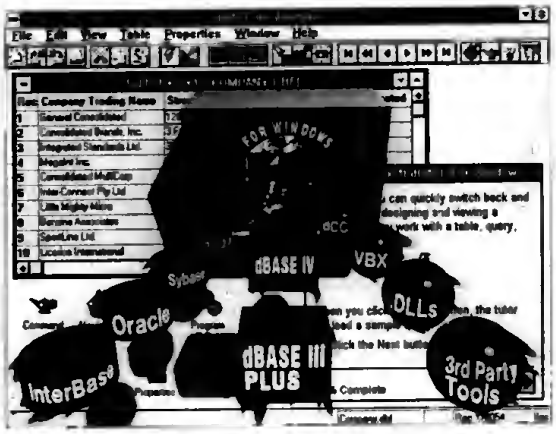
dBASE for Windows makes it easy to be a great Windows developer

Borland will soon release the most powerful dBASE® ever. It revolutionizes the creation of Windows database applications and makes object-oriented development truly easy.



With dBASE for Windows, you can plug in virtually any component, access local or remote SQL data and leverage your dBASE DOS knowledge to build great Windows applications in record time.

The promise of Rapid Application Development is fulfilled

Only dBASE for Windows provides unique Two-Way-Tools™ that reduce development time by letting you work interchangeably between the visual design tool and dBASE source code. As you design forms, queries, and menus, dBASE for Windows automatically generates object-oriented dBASE code for you. You can edit the source code directly, and your changes are instantly reflected back in your visual design. As a result, you dramatically reduce the time required to develop Windows applications.

dBASE for Windows makes object-oriented development easy

As a developer you know that object-oriented programming offers very real benefits. Objects are reusable, so it takes less time to develop new applications and those applications are more reliable, and easier to extend and maintain. But you may have heard that object-oriented programming is difficult to learn. Not anymore.

One of the biggest breakthroughs in dBASE for Windows is how the English-like dBASE language makes it easy to learn object-oriented development. dBASE for Windows adds new object extensions to the dBASE language that millions of developers already know. When you use the Two-Way-Tools to build your menus or forms, dBASE automatically generates the object-oriented code. Since the code is there for you to examine, you learn object-oriented programming simply by using the visual designer. You get the benefits of object-oriented programming without going through a steep learning curve.

dBASE for Windows also includes built-in objects that are ready to go. All the properties and procedures that define the object are already built for you. So you don't need to know a thing about object-oriented development to start doing it. With Borland's unique Object Inspector® you can instantly modify the object just by pointing and clicking with the mouse. Since you're working with proven, prebuilt components, you develop faster and create applications that are more reliable, and more easily maintained. As you become familiar with object-oriented development, you can use the dBASE language to create your own custom objects. As a final step to completing your application development, dBASE has a full Integrated Development Environment (IDE) with state-of-the-art debugger, allowing you to set breakpoints, evaluate expressions, watch variables, and single-step through your program.

Open "Plug-and-Play" Architecture opens a world of opportunity

The open architecture of dBASE for Windows lets you "plug in" practically any component to build solutions faster than ever before. Call the Windows API, connect to SQL data, or load any Windows DLL or custom control (e.g., VBX, or one you've created in dBASE). Once plugged in, they work just like everything else in dBASE. Thus, dBASE for Windows gives you incredible power and flexibility to mold the Windows environment to suit *your* design. Now dBASE developers can instantly add virtually any kind of functionality to their applications—spreadsheet, communications, graphics, and more!

Take the first step

As a developer, you need to be instantly productive and deliver applications fast. Let dBASE for Windows show you the future of application development today. Call now to order.

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